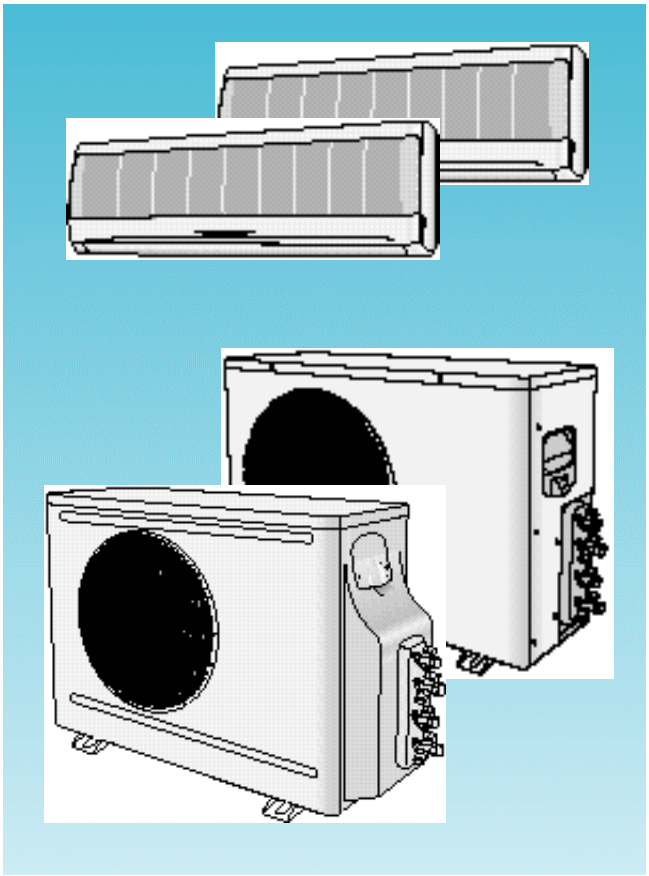
ROOM AIR CONDITIONER

INDOOR UNIT	OUTDOOR UNIT
AD24A1(B1)E12	UD24A1(B1)E2
AD18A1(B1)E09	UD18A1(B1)E2
AD19A1(B1)E07	UD19A1(B1)E2
AD19A1(B1)E12	

SERVICE Manual

AIR CONDITIONER



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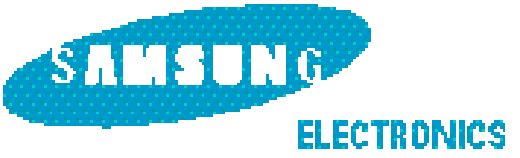

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1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use them. Using defective tools or test equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance. Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

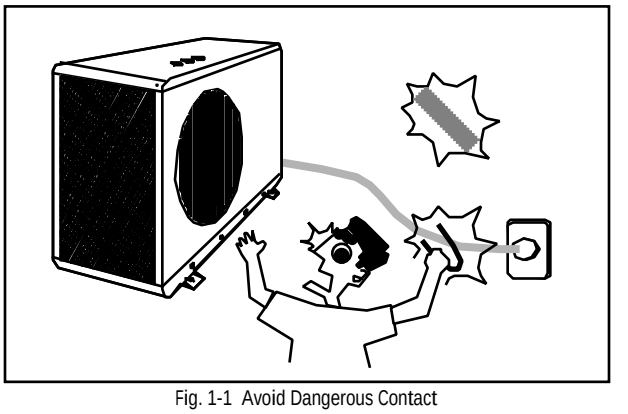


Fig. 1-1 Avoid Dangerous Contact

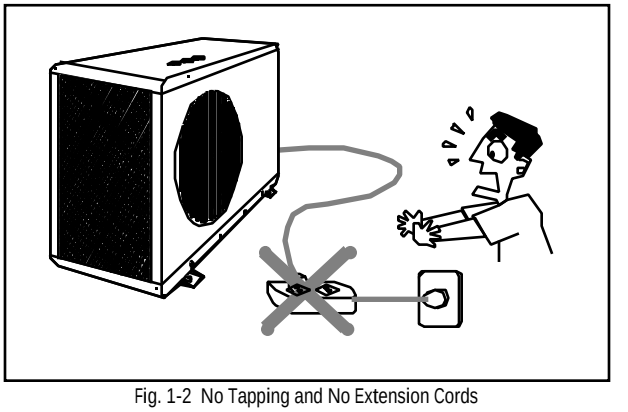


Fig. 1-2 No Tapping and No Extension Cords

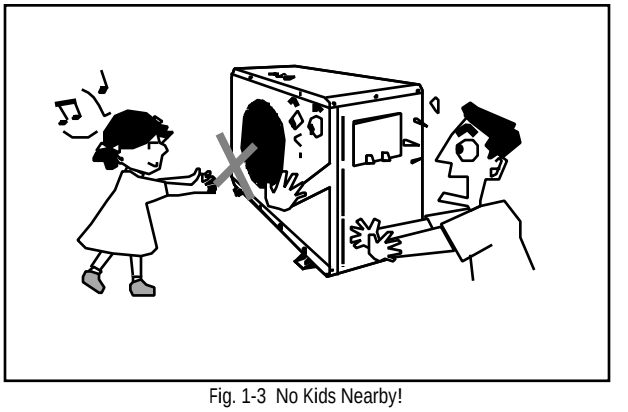


Fig. 1-3 No Kids Nearby!

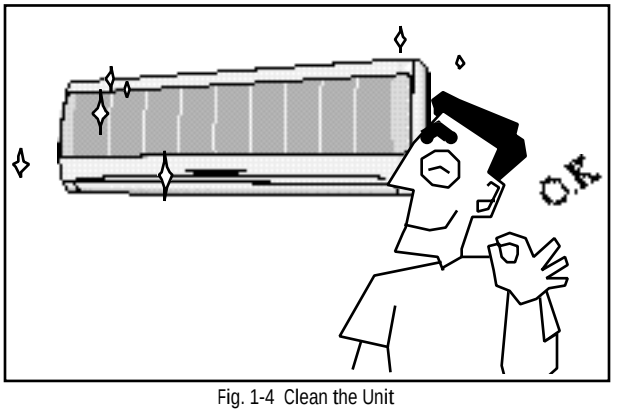


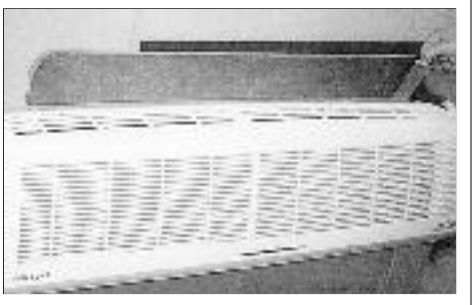
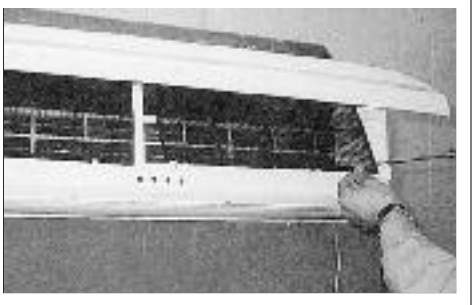
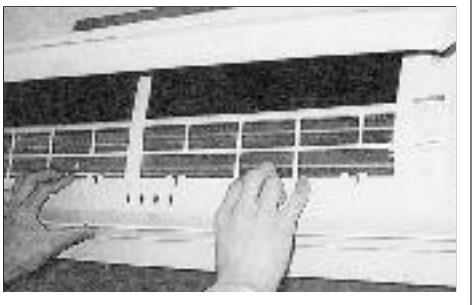
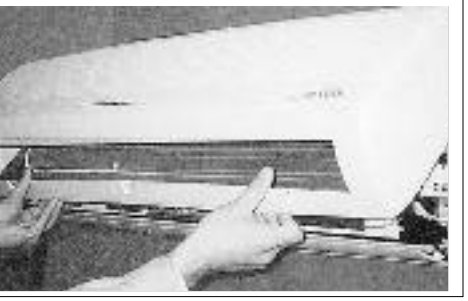
Fig. 1-4 Clean the Unit

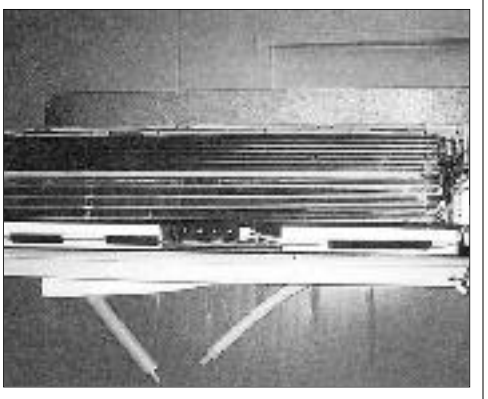
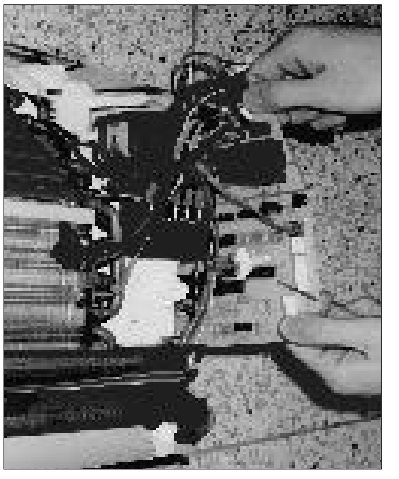
MEMO

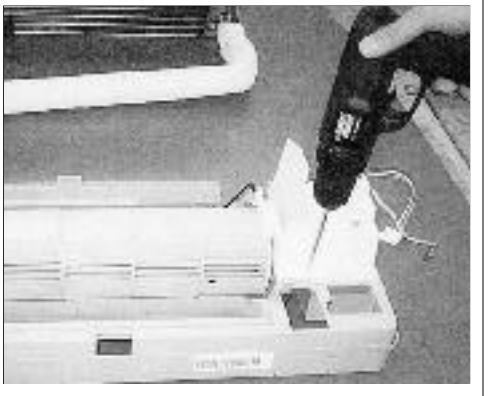
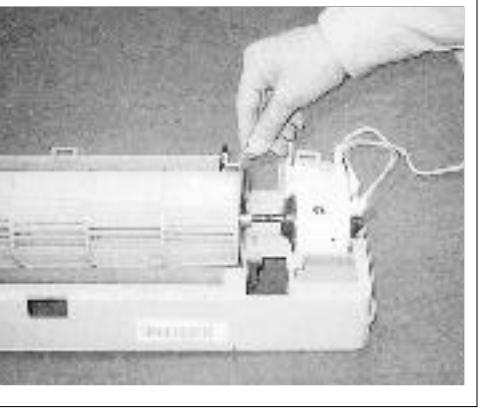
4. Disassembly and Reassembly

Stop operation of the airconditioner and remove the power plug from the wall outlet before repairing the unit

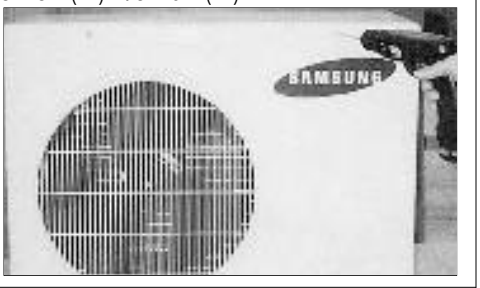
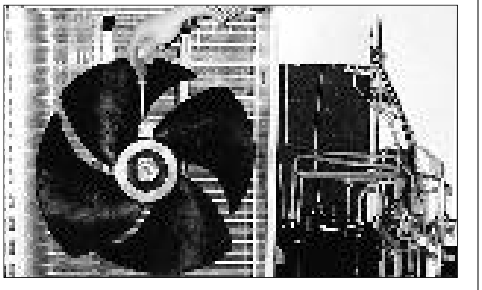
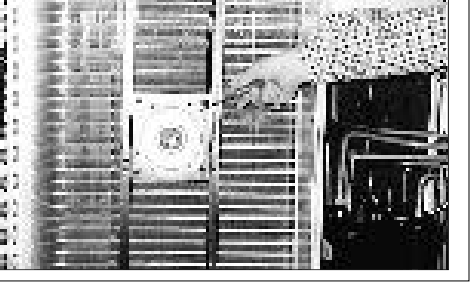
4-1 Indoor Unit

No	Parts	Procedure	Remark
①	Front Grille	1) Stop the air conditioner operation and block the main power. 2) Seperate the tape of front. Panel upper.	
		3) Contract the second finger to the left and right handle and pull to open the inlet grille. 4) Take the left and right filter out. 5) Loosen one of the right fixing screw and seperate the terminal cover.	
		6) Open the cover screw and loosen three fixing screws of front grille.	
		7) Pull the upper left and right of discharge softly for the outside cover to be pulled out.	
		8) Pull softly the lower part of discharge and push it up **Caution:** Assemble the front panel and fix the hooks of left and right.	

No	Parts	Procedure	Remark
②	Filter Frame	1) Loosen the left and right screw of the Holder Filter, and Separate the Holder Filter.	
③	Ass'y Tray Drain	1) Do "① ②", above. Separate the holder at the rear side of Indoor unit. 2) Take the display PCB out. (Center of indoor unit). 3) Loosen three fixing screws of left and right. 4) Pull tray drain out from the back body.	
④	Main PCB	1) Do "① ② ", above 2) Take all the connector of PCB upper side out. (Inclusion Power cord) 3) Separate the outdoor unit connection wire from the terminal block. 4) If pulling the Main PCB up. it will be taken out. (Separate the TRANS hook. it before).	

No	Parts	Procedure	Remark
⑤	Heat Exchanger	1) Do "①②③④", above. 2) Loosen the left screws of the heat exchanger. Lifting the heat exchanger up a little to push the up side for separation from the indoor unit	
⑥	Fan Motor and Cross Fan	1) Do "①②③④⑤", above. 2) Loosen the fixing two screws and separate the motor holder. 3) Loosen the fixing screw of motor fan. (By use of M3 wrench) Separate the motor from the fan. Separate the fan motor the left holder bearing.	 

4-2 Outdoor Unit

No	Parts	Procedure	Remark
①	Cabinet	1) Turn off the unit and remove the power cable 2) Remove the top cover. 3) Remove the control box cover. 4) Unplug the ass'y cable. 5) Remove the cabi-side. 6) Remove the cabi-front. * When you assemble the parts, check if the each parts and electric connectors are fixed firmly.	<UD24A1(B1)E2> <UD18A1(B1)E2/UD19A1(B1)E2> 
②	Fan Motor & Propeller Fan	1) Do Procedure ① above. 2) Remove the nut flange. (Turn to the right to remove as it is a left turned screw) 3) Disassemble the propeller fan.	<UD24A1(B1)E2>  <UD18A1(B1)E2/UD19A1(B1)E2> 

3. Operating Instructions and Installation

3-1 Operating Instructions

3-1-1 Name & Function of Key in remote controller

NO		NAME OF KEY		FUNCTION OF KEY
1				On/Off Button. Use this button to start and stop air conditioner.
2			▲ (UP)	Temp. up button. If the ▲ button is pressed once, the setting temperature is increased by 1°C
			▼ (DOWN)	Temp. down button. If the ▼ button is pressed once, the setting temperature is decreased by 1°C
3		MODE		Each time you press this button, MODE is changed in the following order.
4		TURBO		Use this button to provide heavy duty cooling & Heating for 30 minutes.
5		OFF		Set up the reserve or cancel the timer off quickly
6				Use this button for sleep operation. (The SLEEP mode can be selected at COOL and HEAT mode.)
7				Adjusts air flow vertically, each time you press this button.
8				Each time you press this button, FAN SPEED is changed in the following order.
9	COVER	TIMER	ON TIMER	Set up the time that operation start.
10			OFF TIMER	Set up the time that operation stop.
11			SET	Use this button to reserve the timer on and timer off.
12			CANCEL	Use this button to cancel the timer on and timer off.
13			(UP)	If the button is pressed once, the time increase by one minute during the time set mode, and ten minutes during the timer set mode.
14			(DOWN)	If the button is pressed once, the time decrease by one minute during the time set mode, and ten minutes during the timer set mode.
15			TIME	Without regard to ON/OFF condition in remote controller, use this button to set current time. Adjust the current time using button. (Data can be transmitted after setting up the time)

3-1-1(a) Heat Pump

1. AUTO MODE : In this mode, operation mode(COOL, HEAT, DRY) is selected automatically by the room temperature of initial operation.

Room Temp	Operation Type
Tr≥ 21°C+ΔT	Cool Operation (Set Temp:AUTO SETTING)
21°C +ΔT>Tr	Heat Operation (Set Temp : 22°C+ΔT)

   ΔT= -2°C, -1°C, 0°C, +1°C, +2°C
   ΔT is controlled by setting temperature up / down key of remote controller

2. COOL MODE : The unit operates according to the difference between the setting and room temperature. (18°C~30°C)

3. HEAT MODE : The unit operates according to the difference between the setting and room temperature.(16°C~30°C)
   *Prevention against cold wind : For about 3~5 minutes after initial operation, thermo control or "de-ice", the indoor fan will either not operate or operate very slowly(510 rpm), then switch to the selected fan speed. This period is to allow the indoor unit's heat-exchanger to prewarm before emitting warm air.
   *High temperature release function : The outdoor unit for and compressor ON / OFF control for safety operation, when the overheat is heat exchanger of indoor unit.
   *De-ice : Deicing operation is controlled by indoor unit's heat exchanger temperature and accumulating time of compressor's operation.
   De-ice end by sensing of the processing time by de-ice condition.

4. DRY MODE : Has 3 states, each determined by room temperature.
   The unit operates in DRY mode.
   *Compressor ON / OFF Time is controlled compulsorily(can not set up the fan speed, always breeze).
   *Protective function : Low temperature release. (Prevention against freeze)

5. TURBO MODE : This mode is available in AUTO, COOL, HEAT, DRY, FAN MODE.
   When this button is pressed at first, the air conditioner is operated "powerful" state for 30 minutes regardless of the set temperature, room temperature.
   When this button is pressed again, or when the operating time is 30 minutes, turbo operation mode is canceled and returned to the previous mode.
   *But, if you press the TURBO button in DRY or FAN mode that is changed with AUTO mode automatically.

6. SLEEP MODE : Sleep mode is available only in COOL or HEAT mode.
   The operation will stop after 6 hours.
   *In COOL mode : The setting temperature is automatically raised by 1°C each 1hour When the temperature has been raised by total of 2°C, that temperature is maintained.
   *In HEAT mode : The setting temperature is automatically droped by 1°C each 1hour. When the temperature has been droped by total of 2°C, that temperature is maintained.

7. FAN SPEED : Manual (3 step), Auto (4 step)
   Fan speed automatically varies depending on both the difference between setting and the room temperature.

8. COMPULSORY OPERATION :
   For operating the air conditioner without the remote controller.
   *AUTO : The operating is the same function that AUTO MODE in the remote controller.

9. SWING : BLADE-H is rotated vertically by the stepping motor.
   *Memory louver : When ON/OFF button is pressed at stop state, the BLADE-H returns to its original location which is operating state before stop
   *Swing Set : Press the utton under the remote control is disp...d on LCD the and the blades move up and down, about ...
   If the one more time press the utton, blatles location is stop.

10. Quick OFF TIMER: OFF timer (quick timer) allows reservation or cancel the timer off quickly
    When OFF timer button is pressed at operating state, LCD displays the polling state sequentially.
    The LCD also displays the time remaining.

11. 24-Hour ON/OFF Real Setting Timer. : The air conditioner is turned ON at a specified time using ON TIMER.
    OFF TIMER : The air Conditioner is turned OFF at a specified time using OFF TIMER.
    *ON TIMER : Only timer LED lights on.
    *OFF TIMER : Both timer and operation LED lights on.
    *3 minutes delay timer.

12. SELF Diagnosis

LED DISPLAY				Check Point
operation	TIMER	FAN	Turbo	
■	○	○	○	Interruption of electric power and Power on.
○	■	○	○	Abnormal condition of the room sensor.
■	■	○	○	Abnormal condition of the indoor unit's heat exchanger sensor.
○	○	■	○	Indoor unit fan motor lock.

■ : LED blinking ○ : LED off

13. BUZZER SOUND : Whenever the ON/OFF button is pressed or whenever change occurs to the condition which is set up or select, the compulsory operation mode, buzzer is sounded "beep"

3-2 Installation

3-2-1 Selecting Area for Installation

Select an area for installation that is suitable to the customer's needs.

3-2-1(a) Indoor Unit

1. Make sure that you install the indoor unit in an area providing good ventilation. It must not be blocked by an obstacle affecting the airflow near the air inlet and the air outlet.
2. Make sure that you install the indoor unit in an area allowing good air handling and endurance of vibration of the indoor unit.
3. Make sure that you install the indoor unit in an area where there is no source of heat or vapor nearby.
4. Make sure that you install the indoor unit in an area from which hot or cool air is spread evenly in a room.
5. Make sure that you install the indoor unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).
6. Make sure that you install the indoor unit in an area which provides easy pipe connection with the outdoor unit, and easy drainage for condensed water.
7. Make sure that you install the indoor unit in an area which is large enough to accomodate the measurements shown in figure on the next page.

3-2-1(b) Outdoor Unit

1. Make sure that you install the outdoor unit in area not exposed to the rain or direct sun light.
   (Install a separate sunblind if exposed to direct sun light.)
2. Make sure that you install the outdoor unit in area allowing good air moment, not amplifying noise or vibration, especially to avoid disturbing neighbours.
   (Fix the unit firmly if it is mounted in a high place.)
3. Make sure that you install the outdoor unit in area providing good ventilation and which is not dusty. It must not be blocked by any obstacle affecting the airflow near the air inlet and the air outlet.
4. Make sure that you install the outdoor unit in area free from animals or plants.
5. Make sure that you install the outdoor unit in area not blocking the traffic.
6. Make sure that you install the outdoor unit in area easy to drain condensed water from the indoor unit.
7. Make sure that you install the outdoor unit in area which provides easy connection within the maximum allowable length of a coolant pipe (10 meters).
   Note
   1. Add 10 grams of refrigerant (R-22) for every 1 meter if the pipe length exceeds the standard pipe length of 5 meters.
   2. Maintain a height between the indoor and outdoor units of less than 3 meters.
8. Make sure that you install the outdoor unit in an area which is large enough to accommodate the measurements shown in figure on the next page.

3-2-1(c) Remote Control Unit

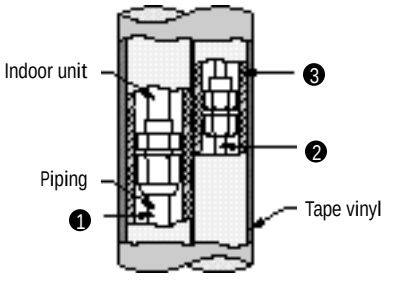
1. Make sure that you install the remote control unit in an area free from obstacles such as curtains etc, which may block signals from the remote control unit.
2. Make sure that you install the remote control unit in an area not exposed to direct sunlight, and where there is no source of heat.
3. Make sure that you install the remote control unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).

Caution

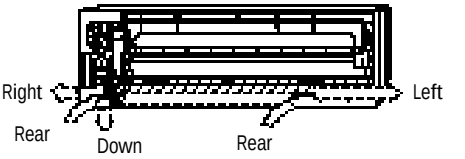
It is harmful to the air conditioner if it is used in the following environments: greasy areas (including areas near machines), salty areas such as coast areas, areas where sulfuric gas is present such as hot spring areas. Contact your dealer for advice.

3-2-2 Installation diagram of indoor unit and outdoor unit

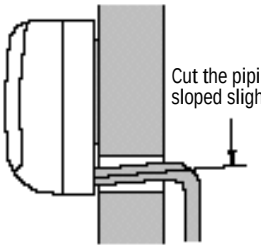
A Indoor unit gas leak test check point

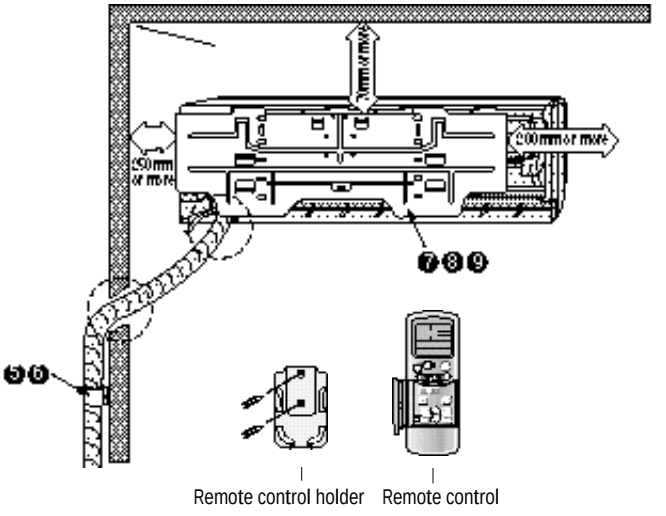


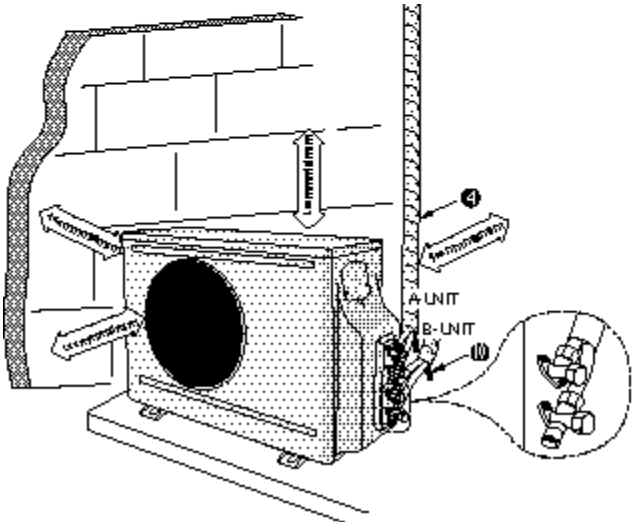
Piping may be laid to the rear, left, right or down .

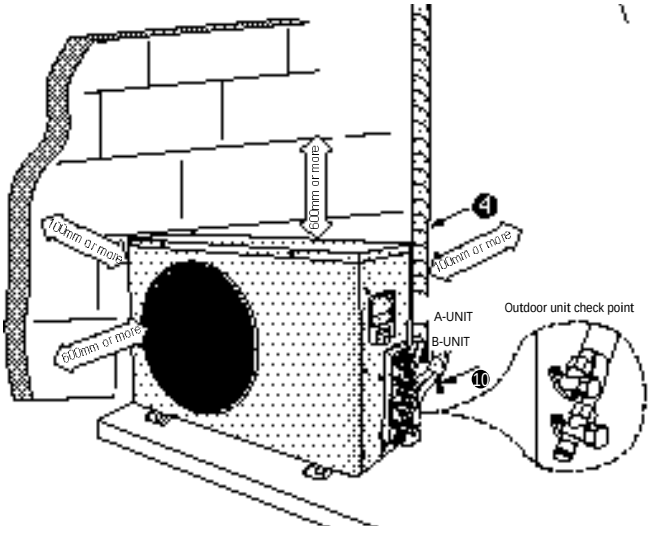


B Drain hose installation



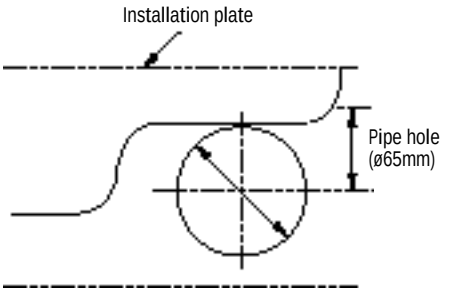






❶	Piping (Liquid) 1/4”	❻	Clamper tube
❷	Piping (Gas) 1/2”, 3/8”	❼	Installation plate
❸	Installation tube	❽	Pipe-connection
❹	Vinyl tape	❾	Screw
❺	Putty	❿	Drain hose

3-2-2(a) Fixing the Installation Plate

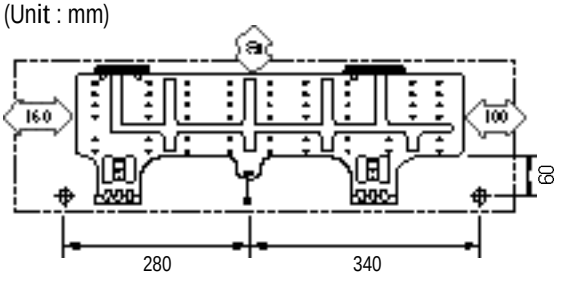


1. Determine the position of the pipe and drain hose hole using the right figure and drill the hole with an inner diameter of 65mm so that it slants slightly downwards.

2. **If you are fixing the indoor unit to a… Then follow Steps…**

Wall	**3.**
Window frame	**4 to 6.**

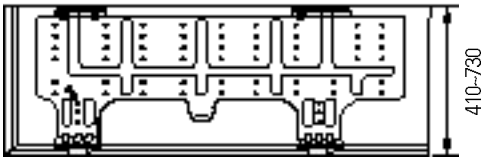
(Unit : mm)



3. Fix the installation plate to the wall in a manner appropriate to the weight of the indoor unit.

   If you are mounting the plate on a concrete wall with anchor bolts, the anchor bolts must not project by more than 20mm.

(Unit : mm)

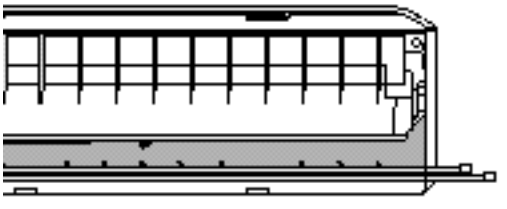


4. Determine the positions of the wooden uprights to be attached to the window frame.

5. Attach the wooden uprights to the window frame in a manner appropriate to the weight of the indoor unit.

6. Using tapped screws, attach the installation plate to the wooden uprights, as illustrated in the last figure opposite.

3-2-2(b) Purging the Unit



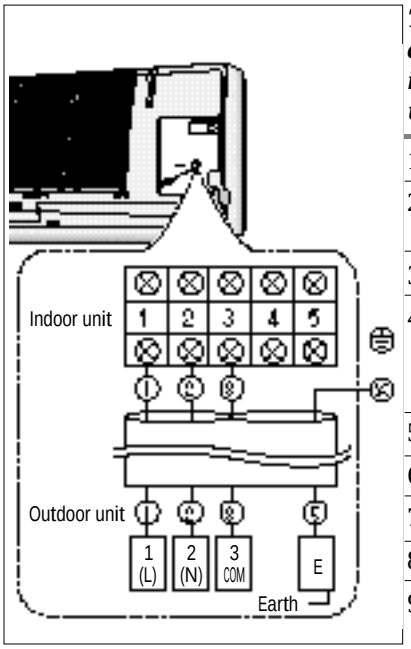
On delivery, the indoor unit is loaded with an inert gas. All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as fol - lows.

Unscrew the caps at the end of each pipe.

Result : All inert gas escapes from the indoor unit.

- **To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the caps completely until you are ready to connect the piping.**

3-2-2(c) Connecting the Assembly Cable.



The outdoor unit is powered from the indoor unit via the assembly cable. If the outdoor unit is more than five metres away from the indoor unit, the cable must first be extended to a maximum of ten metres.

1. Extend the assembly cable if necessary.
2. Open the front grille by pulling on the tabs on the lower right and left sides of the indoor unit.
3. Remove the screw securing the connector cover.
4. Pass the assembly cable through the rear of the indoor unit and connect the assembly cable to terminals 1, 2, 3, 5.
   - Each wire is labelled with the corresponding terminal number.
5. Firmly fix the ass'y cable with clamp wire holder.
6. Pass the other end of the cable through the 65mm hole in the wall.
7. Replace the connector cover, carefully tightening the screw.
8. Close the front grille.
9. For further details on how to plug the other end of the assembly cable into the outdoor unit, refer to page 3-8.

3-2-2(d) Installing and Connecting the Indoor Unit Drain Hose

Care must be taken when installing the drain hose for the indoor unit to ensure that any condensa - tion water is correctly drained outside.l When passing the drain hose through the 65mm hole drilled in the wall, check that none of the following situations occur.

The hose must NOT slope upw ards.

The end of the drain hose must NOT be placed in water.

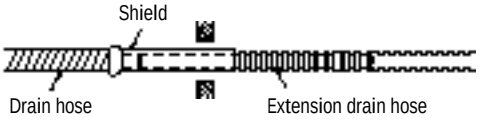
Do NOT bend the hose in different directions.

Keep a clearance of at least 5cm between the end of the hose and the ground.

Do NOT place the end of the drain hose in a hollow.

To install the drain hose, proceed as follows.

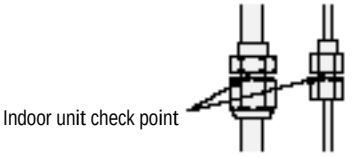
1. If necessary, connect the 2-metre extension to the drain hose.
2. If you are using the extension, insulate the inside part of the extension drain hose with a shield.
3. Pass the drain hose under the refrigerant piping, taking care to keep the drain hose tight.
4. Pass the drain hose through the hole in the wall, making sure that it is sloping downwards, as shown in the illustrations above.

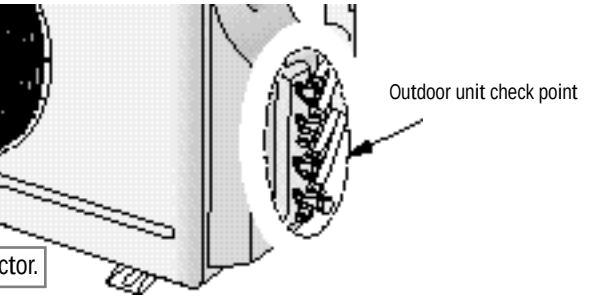


The hose will be fixed permanently into position once the whole installation has been tested for gas leaks; refer to page 16 for further details.

3-2-2(e) Outdoor unit installation

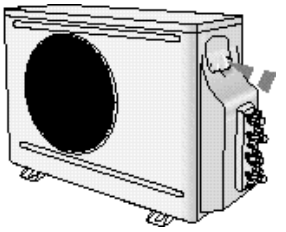
GAS LEAK TEST





Check for gas leak from the flare nut connections with leak detector.

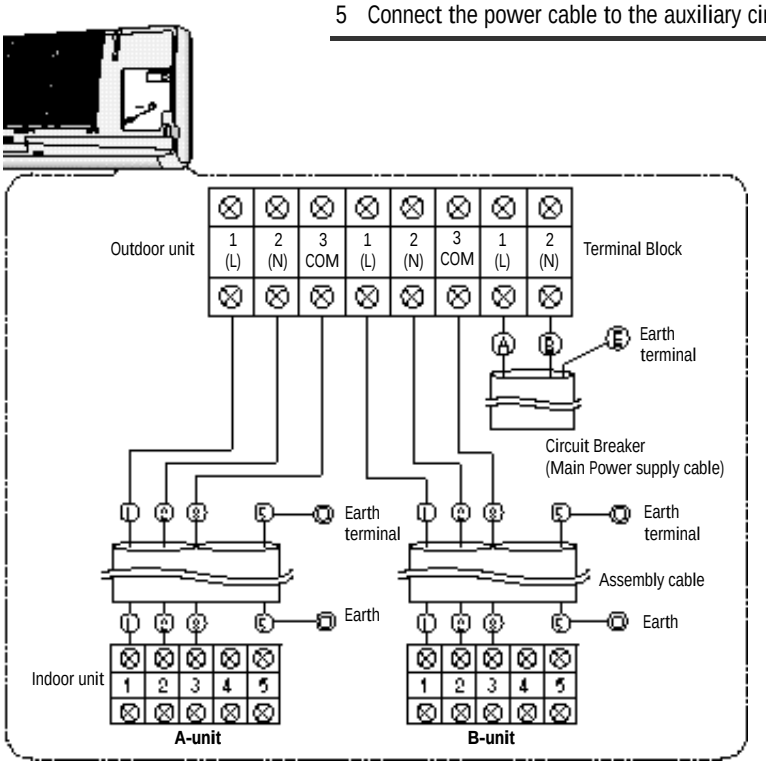
WIRING CONNECTION



Two electric cables must be connected to the outdoor unit:

- ***The assembly cable connecting the indoor unit to the outdoor unit.***
- ***The power cable connecting the auxiliary circuit breaker to the outdoor unit.***

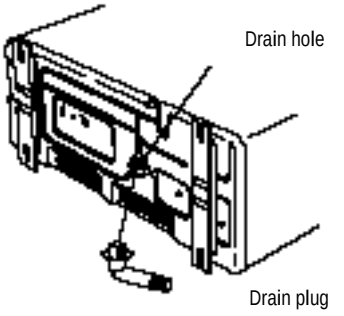
1	Remove the terminal board cover on the side of the outdoor unit.
2	Connect the assembly cable to terminals 1 to 5 and connect the power cable to therminals A to B. ► Each wire is labelled with the corresponding terminal number. ► Ensure the wire number of the indoor unit and the terminal number of the outdoor unit.
3	Connect the earth wires to the earth terminals. ► Refer to the page opposite for further details on how to check that earthing is correct.
4	Replace the terminal board cover, carefully tightening the screw.
5	Connect the power cable to the auxiliary circuit breaker.



Installation of drain line

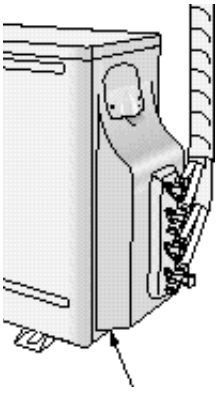
In heating and "de-ice" operation, condensed water may be generated.
Install drain line as following procedure.

1. Insert drain plug into hole and then connect drain hose to drain plug.
- Inside diameter of drain hose is 18mm

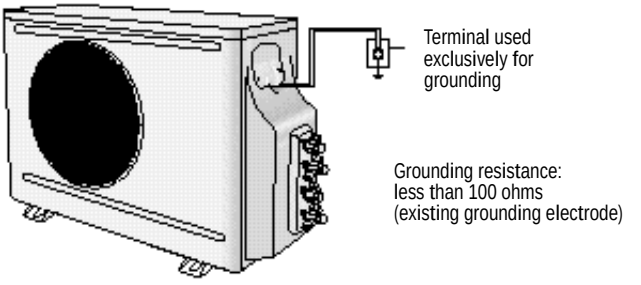


Grounding

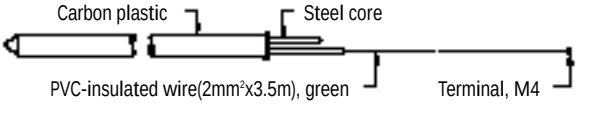
(The parts for this work are optional)
- A grounding terminal can be found on the outdoor unit as illustrated.



1. When an existing grounding terminal is available.
   (Grounding wire of ø1.6mm or larger<solid wire>or 2mm^2 or larger <standard wire>)

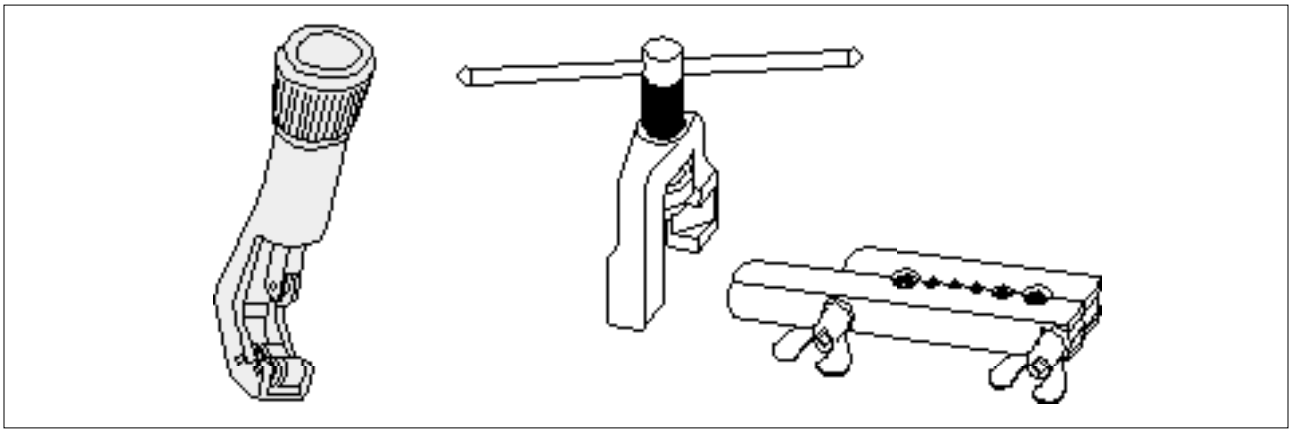


2. Use of a grounding electrode.
- Specifications of grounding electrode.



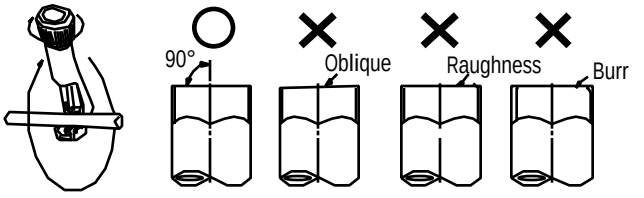
3-2-2(f) Flare Modification

• Tools used



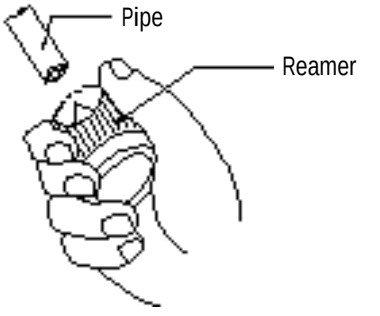
Flare modification procedure

1) Cut the pipe using a pipe cutter.

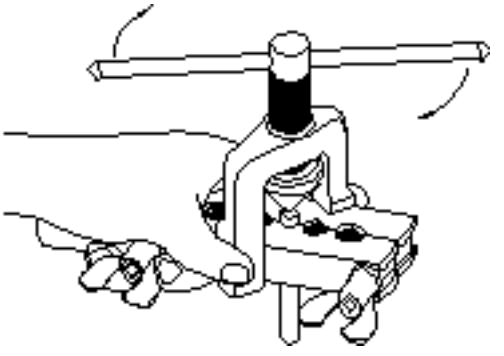


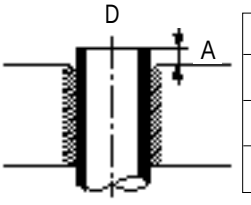
2) Remove burrs at the tip of the pipe cut.

Caution : Burrs not removed may result in leakage of gas.



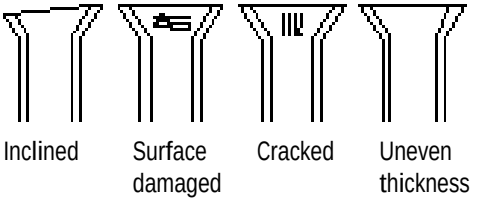
3) Insert a flare nut into the pipe and modifty flare.





Outer diameter	A(mm)
ø6.35mm	1.3
ø9.52mm	1.8
ø12.7mm	2.0

* Unproper flaring

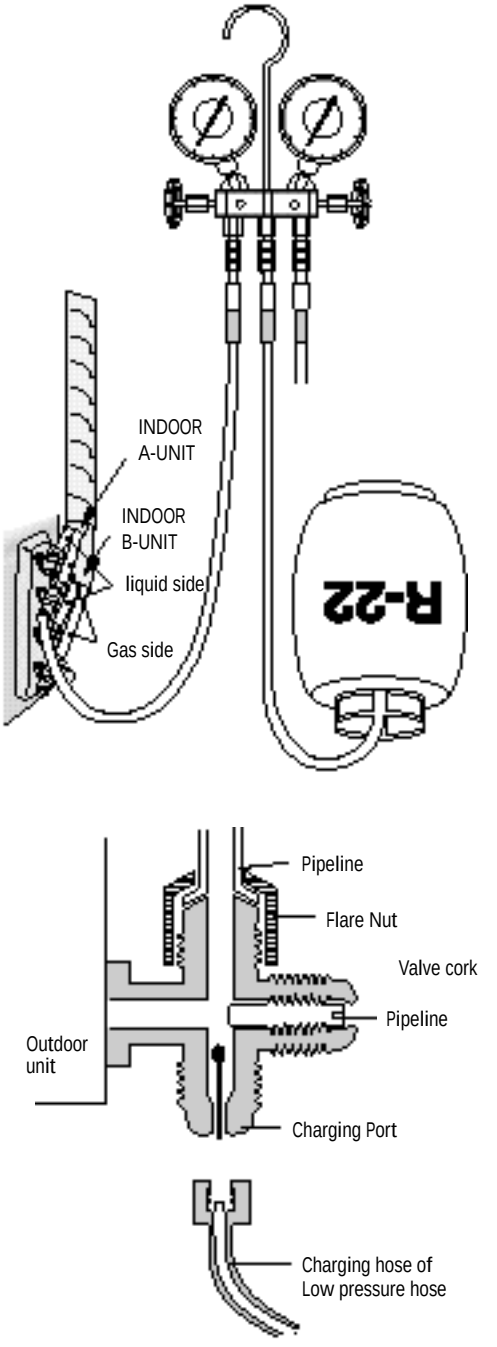


3-2-2(g) Air Purging

CAUTION

The air in indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling/heating capacity, and could lead to a malfuction. Refrigerant for air purging is not charged in the outdoor unit. Use additional refrigerant as shown at the right figure. Each unit must be purged in turn

1. Check the piping connections
2. Connect the charging hose of low pressure side of Manifold gauge to the packed valve having a charging port (3/8" or 1/2" Packed valve)
3. Open the valve of the low pressure side of Manifold gauge counterclockwise for 10 seconds, and then close it to closed position.
4. Check for gas leakage.
   - Check the flare connections for gas leakage.
5. Purge the air from the system.
   - Loosen the liquid side(1/4") flare nut after gas leakage check
   - Open the low pressure side valve of the Manifold gauge for 10 seconds to purge the air from the system. Repeat this three times or more.
   - Tighten the liquid side(1/4") flare nut when the low pressure of the manifold gauge indicates about 0.5Kg/cm^2.
6. Set valve cork of both liquid side and gas side of packed valve to the open position.
7. Mount the valve stem nuts to the 2-way and 3-way valve. And mount the service port cap to 3-way valve
8. Check for gas leakage.
   - At this time, especially check for gas leakage from the 3-way valve's stem nuts, and from the service port cap.



<Structure of 3-way valve>

3-2-2(h) Refrigerant Refill

If connecting pipe of more than 10 metres is installed, additional refrigerant should be charged by extra metre. You don't have to charge additional refrigerant up to 10 metres of connecting pipe.

1. Remove the valve stem cap and service port of 3-way valve.
2. Connect the charging hose of low pressure side of Manifold gauge to the packed valve having a charging port(1/2" Packed valve) as shown at the right figure.
3. Operate the unit at the cooling mode.
4. Slowly open the valve of the low pressure side of Manifold gauge counterclockwise until the low pressure of manifold gauge indicates 4.8 to 5.5 kg/cm2 (68 a 78psi) at the high cool operation (1-unit operation) and the standard temperature.

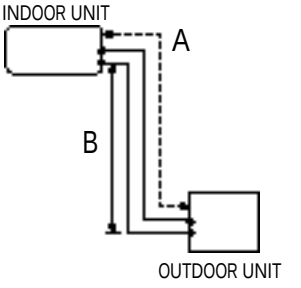
   It is recommend that refrigerant should be slowly put in. If the refrigerant is put in too quickly, compressor will be damaged.
5. Stop operation of the air conditioner.
6. Disconnect the charge hose of manifold gauge.
7. Close the cap of each valve.

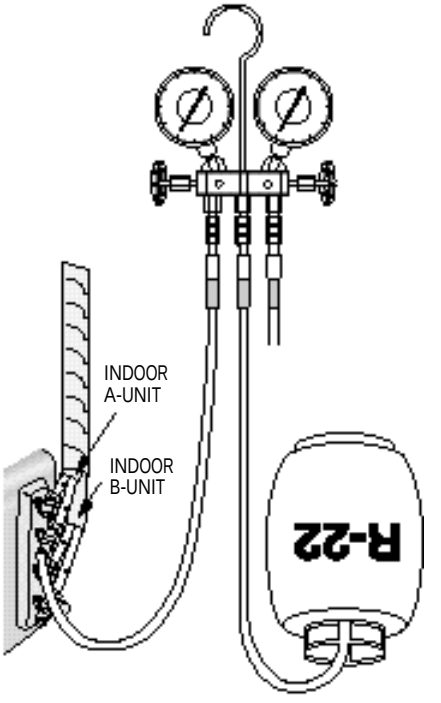
- Piping length and the height

	Pipe Size		Max.piping length A	Max height B
	LIQUID	GAS		
AD24A1(B1)E12	1/4"	1/2"	15m	3m
AD19A1(B1)E12	1/4"	1/2"	15m	3m
AD18A1(B1)E09	1/4"	3/8"	15m	3m
AD19A1(B1)E07	1/4"	3/8"	15m	3m

Additional refrigerant charge (R22,g)

- When length of the pipe is over 5u by the unit, you should charge the refrigerant Formulas
  A-UNIT : 10gx(La-10)/m
  B-UNIT : 10gx(Lb-10)/m
  (La:the length of A-unit's pipe Lb:the length of B-unit's pipe)





3-2-2(i) Flare unt fixing torque

Outter diameter	Torque (kg-cm)	
	Fixing Torque	Final Torque
ø6.35(Liquid Side)	160	200
ø9.52(Gas Side)	300	350
ø12.7(Gas Side)	500	550

3-2-2(j) Pump down

1. Confirm that both the 2-way and 3-way valves are set to the open position.
   (1) Remove the valve stem caps.
   (2) Be sure to use a hexagonal wrench to operate the Gas side valve stems.

2. Operate the unit for 10 to 15 minutes.

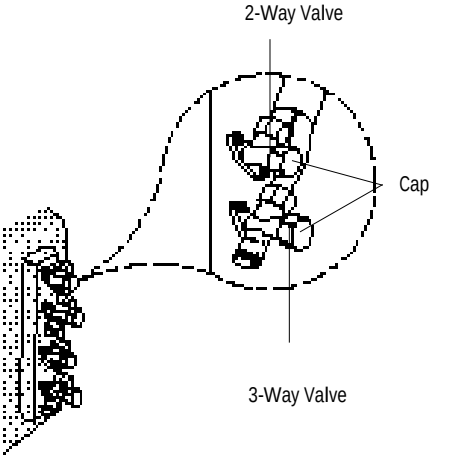
3. Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.
   (1) Connect the charge hose with the push pin to the service port.

4. Air purging of the charge hose.
   (1) Open the low-pressure valve on the charge set slightly to air purge from the charge hose.

5. Set the liquid side 2-way valve to the closed position.

6. Operate the air conditioner at the cooling cycle and stop operation immediately after setting the 3-way valve to the closed position when the gauge indicates 0 kg/cm^{2}G.
   If the unit can not be operated at the Cooling Mode(weather is rather cool), operate the unit at the Trubo Mode. So that the unit can be operated.

7. Disconnect the charge set, and mount the both 3-way valve's stem nuts and the service port cap.



Relocation of the air conditioner

- Refer to this procedure when the unit is relocated.

1. Carry out the pump down procedure (refer to the details of 'pump down').
2. Remove the power cord.
3. Disconnect the assembly cable from the indoor and outdoor units.
4. Remove the flare nut connecting the indoor unit and the pipe.
   At this time, cover the pipe of the indoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
5. Disconnect the pipe connected to the outdoor unit.
   At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
6. Make sure you do not bend the connection pipes in the middle and store together with the cables.
7. Move the indoor and outdoor units to a new location.
8. Remove the mounting plate for the indoor unit and move it to a new location.

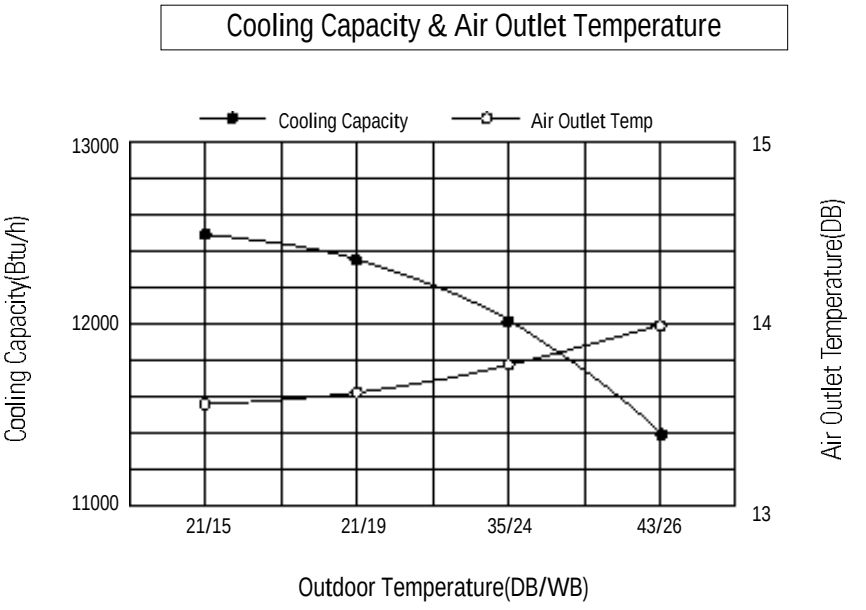
3-2-3 Technical Document

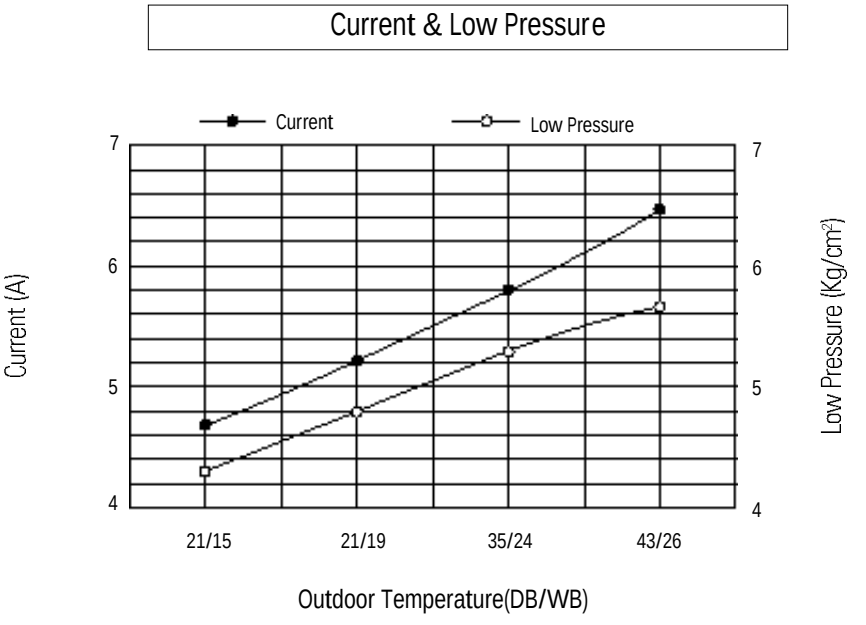
3-2-3(a) AD24A1(B1)E12 / AD19A1(B1)E12

• Cooling Characteristics - Outdoor Temperature

Test Condition Indoor Unit (DB / WB) : 27 / 19
Voltage / Frequency : 240V / 50Hz

• In case of 2Unit, Capacity & Current multiplied by 2



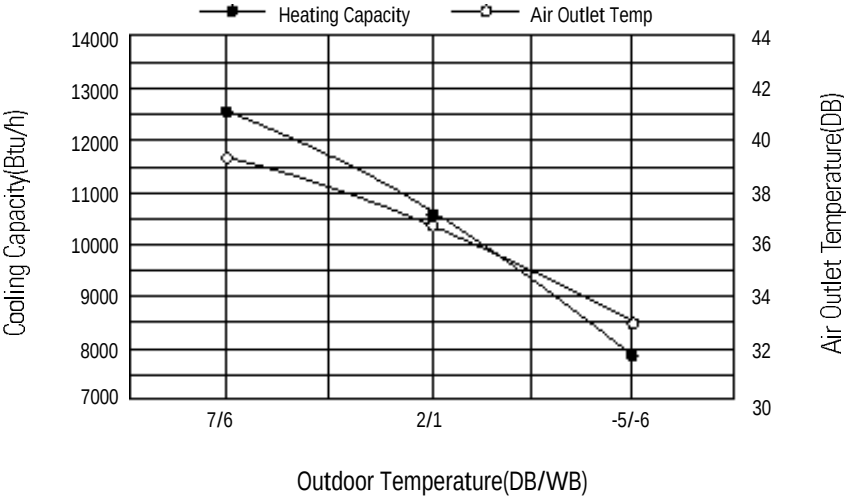


• Heating Characteristics - Outdoor Temperature

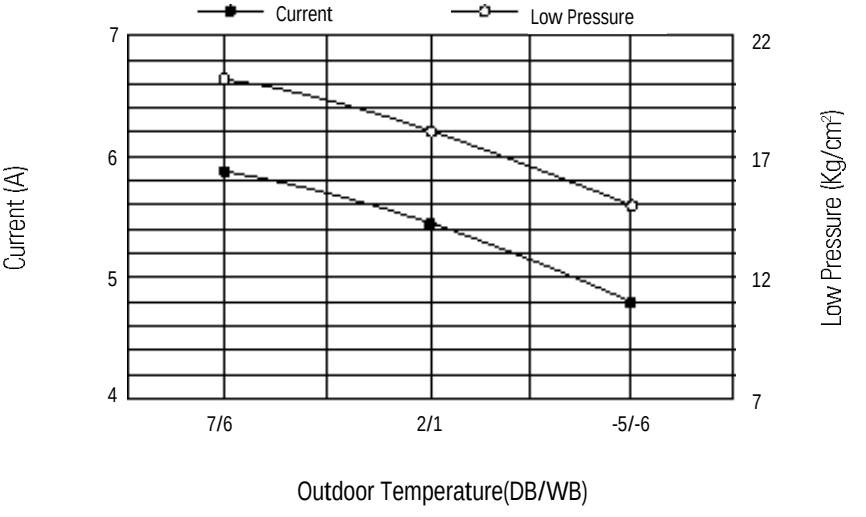
Test Condition Indoor Unit (DB / WB) : 20 / 15
Voltage / Frequency : 240V / 50Hz

• In case of 2Unit, Capacity & Current multiplied by 2

Heating Capacity & Air Outlet Temperature



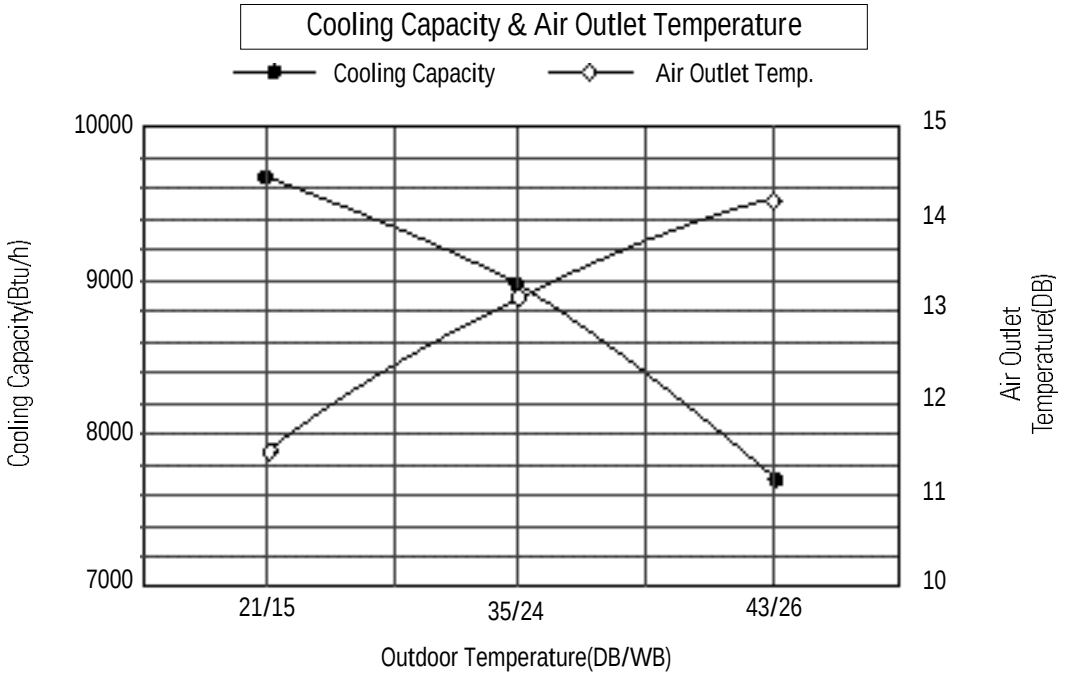
Current & Low Pressure

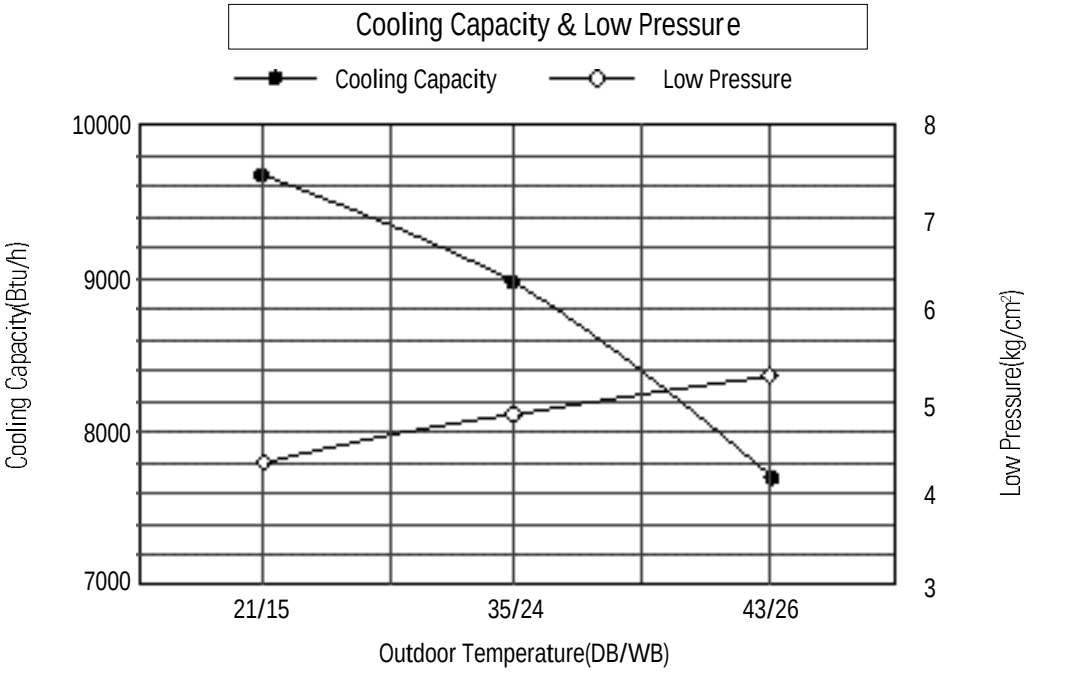


3-2-3(b) AD18A1(B1)E09 / AD19A1(B1)E07

- Cooling Characteristics - Outdoor Temperature

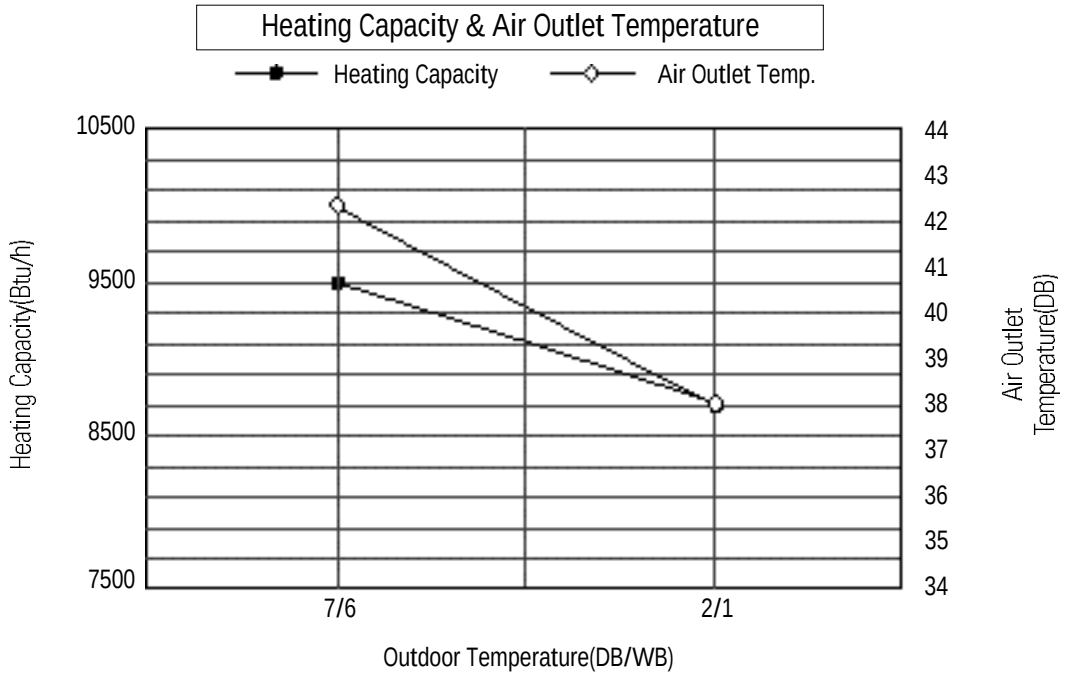
  Test Condition Indoor Unit(DB / WB) : 27 / 19
  Voltage / Frequency : 240V / 50Hz

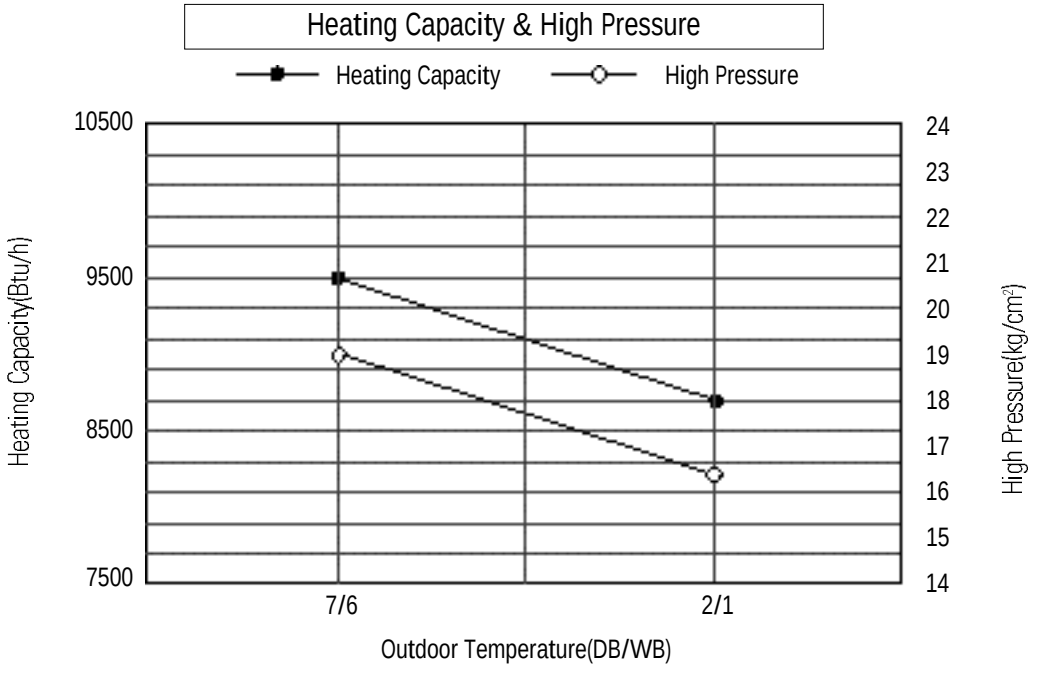




- Heating Characteristics - Outdoor Temperature (B or C Indoor Unit Only)

  Test Condition Indoor Unit(DB / WB) : 20 / 15
  Voltage / Frequency : 240V / 50Hz





MEMO

5. Troubleshooting

5-1 Items to be checked first

1) Is the voltage of the power correct?
The input voltage shall be the rating Voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 4 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The COOL operation indication LED (Green) blinks for 3minutes when a power plug of the outdoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature lower than the setting temperature. In a HEAT operation mode, the compressor does not operate at a room temperature higher than the setting temperature.	
3	Fan speed setting is not allowed in AUTO or DRY mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is 5 steps is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Compressor of the outdoor unit is operating although the indoor unit is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 12 minutes (maximum) until the deice is completed.
6	Timer LED only of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
7	The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from being overheated in a HEAT mode.
8	Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation
9	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent indoor heat exchanger from being frozen.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

◐ : Lamp blinking X : Lamp OFF

NO	Display				Self Diagnosis
	Operating	Timer	Fan	Turbo	
1	◐ (GREEN)	X	X	X	Restore from power failure (input initial power)
2	X	◐	X	X	Indoor unit Room sensor Error (open or short)
3	◐ (GREEN)	◐	X	X	Indoor unit heat exchanger temperature sensor Error (open or short)
4	X	X	◐	X	Indoor fan malfunctioning (for speed is below 450rpm)
5	X	◐	◐	X	In case that the communication between the indoor unit and outdoor unit is not made for 60 seconds
6	◐ (GREEN)	X	◐	X	Outdoor sensor Error (open or short) - Outdoor sensor - Pipe sensor A, B
7	◐ (GREEN)	X	◐	◐	The malfunction ot 4way valve in heat mode operation.

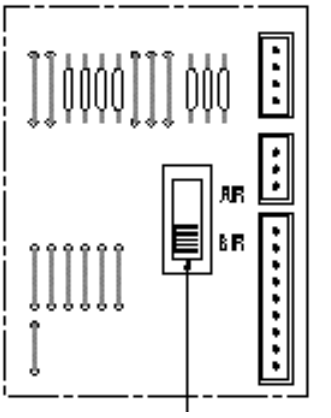
5-2 Checking and Testing Operations (Outdoor Unit)

To complete the installation, perform the following checks and tests to ensure that the air conditioner is operating correctly.

1. Review all the following elements in the installation:
   - Installation site strength
   - Piping connection tightness to detect any gas leakages
   - Connection wiring
   - Heat-resistant insulation of the piping
   - Drainage
   - Earthing wire connection
   - Correct operations (follow the steps below)
   - Room select switch in the indoor unit

ROOM NO	Room select switch
A unit	A/R
B unit	B/R

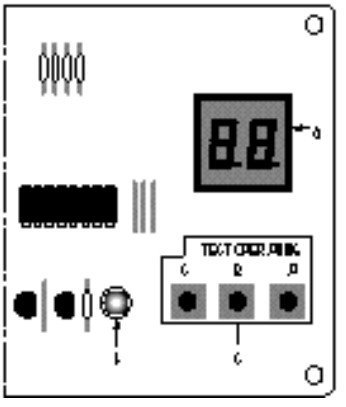
INDOOR UNIT



Room select switch(A, B unit)

2. Apply the power to the outdoor unit.
   - Check the fuse (250V~, 5A) : The fuse is open when the power line (L, N) is short.

OUTDOOR UNIT



A : PCB display
B : Red LED
C : PCB switch

3. Check the connection of PCB communication of outdoor unit.
   (Check whether the red LED of outdoor unit PCB is flickering.)

   • The communication lamp is flickering after the display of each unit on the outdoor PCB display part. (every one second).
   LED is not flikering, if the connection is bad or the room select switch is located in the wrong position.
   - LED lamp (red) flickering after display of A (1 sec)
   - LED lamp (red) flickering after display of b (1 sec)
   - LED lamp (red) flickering after display of C (1 sec)
   Note : PCB switch “C” is used for triple split multi air conditioner.

   Result : If all of three units display lamps are flickering, the connection wires and the room option connections are good.

   If the lamp is not flickering, check as follows:

   A. Check the display part of indoor unit of each unit (A,B) after outdoor unit PCB switch S/W-A is on.
   Check the status of each unit indoor room select switch.
   (Adjust the select switch suitable to the unit A, B.)
   - A unit : OPERATION LED on, TIMER LED flickering
   - B unit : OPERATION LED on, TIMER and FAN LED flickering
   - C unit : OPERATION LED on, TIMER and FAN, TURBO LED flickering (In case of triple split multi air conditioner)

UNIT	OPERATION	TIMER	FAN	TURBO
A	○	◐	●	●
B	○	◐	◐	●
C	○	◐	◐	◐

○ Lamp ON ● Lamp OFF ◐ Lamp Flasher

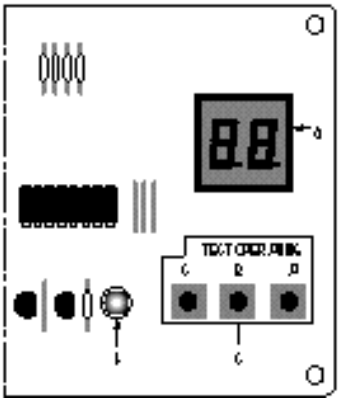
   B. Check the communication connection of outdoor unit PCB
   (Check whether the red LED of outdoor unit PCB is flickering).
   The communication lamp is flickering after the display of each unit on the outdoor unit PCB. (every one second)
   - LED lamp (red) is flickering after display of A (1 sec)
   - LED lamp (red) is flickering after display of b (1 sec)
   - LED lamp (red) is flickering after display of C (1 sec)

   Result: If all of three units display lamps are flickering, the connection wires and the room option connections are good.

DISPLAY	EXPLANATION	REMARK
Er-tO	Outdoor sensor error (Short/Open)	Be sure to check after applying the power to the outdoor unit.
Er-tA	Outdoor A cond pipe sensor error (Short/Open)	
Er-tb	Outdoor B cond pipe sensor error (Short/Open)	
Er-tC	Outdoor C cond pipe sensor error (Short/Open)	
Er- A	A unit test operation error	Display when the test operation finishes. • When the pipe temperature difference of indoor unit (pipe temperature 4 minutes before - Actual pipe temperature) is less than 5˚C.
Er- b	B unit test operation error	
Er- C	C unit test operation error	
Er-CA	A unit test communication error	Be sure to check during the test operation.
Er-Cb	B unit test communication error	
Er-CC	C unit test communication error	
Er-CO	A,B,C unit all communication error	Display of power application.
Gd- A	A room test operation OK	Display 4 minutes after the COMP is on.
Gd- b	B room test operation OK	
Gd- C	C room test operation OK	
A	Communication unit number display : A unit	• Normal operation Unit A.B and C are changed every one second. The communication lamp is flickering after display of each unit. (possibility to check the communication status) • During the test operation the unit under test is on and off every 0.25s.
b	Communication unit number display : B unit	
C	Communication unit number display : C unit (In case of triple split multi air conditioner)	

4. Check the test operation status by pressing the PCB switch S/W-A and S/W-B of outdoor unit.
   - Check the operation status by pushing the switch one at time.
   - Perform the test operation only for the unit selected last.
   - Check the pipe pressure and the other operation status during the test operation.
   - Check items when the error occurs during the test operation (each unit)
     - Check there is enough refrigerant.
     - Check pipe connections.

OUTDOOR UNIT



a : PCB display
b : Red LED
c : PCB switch

EXAMPLE

- In case of unit A test, push once the PCB switch S/W-A (same for unit B).
  - In such a case, the indoor unit of unit A is operated automatically by the outdoor unit.
  - In case the unit A test stops, push once more the switch S/W-A.

< Operation >

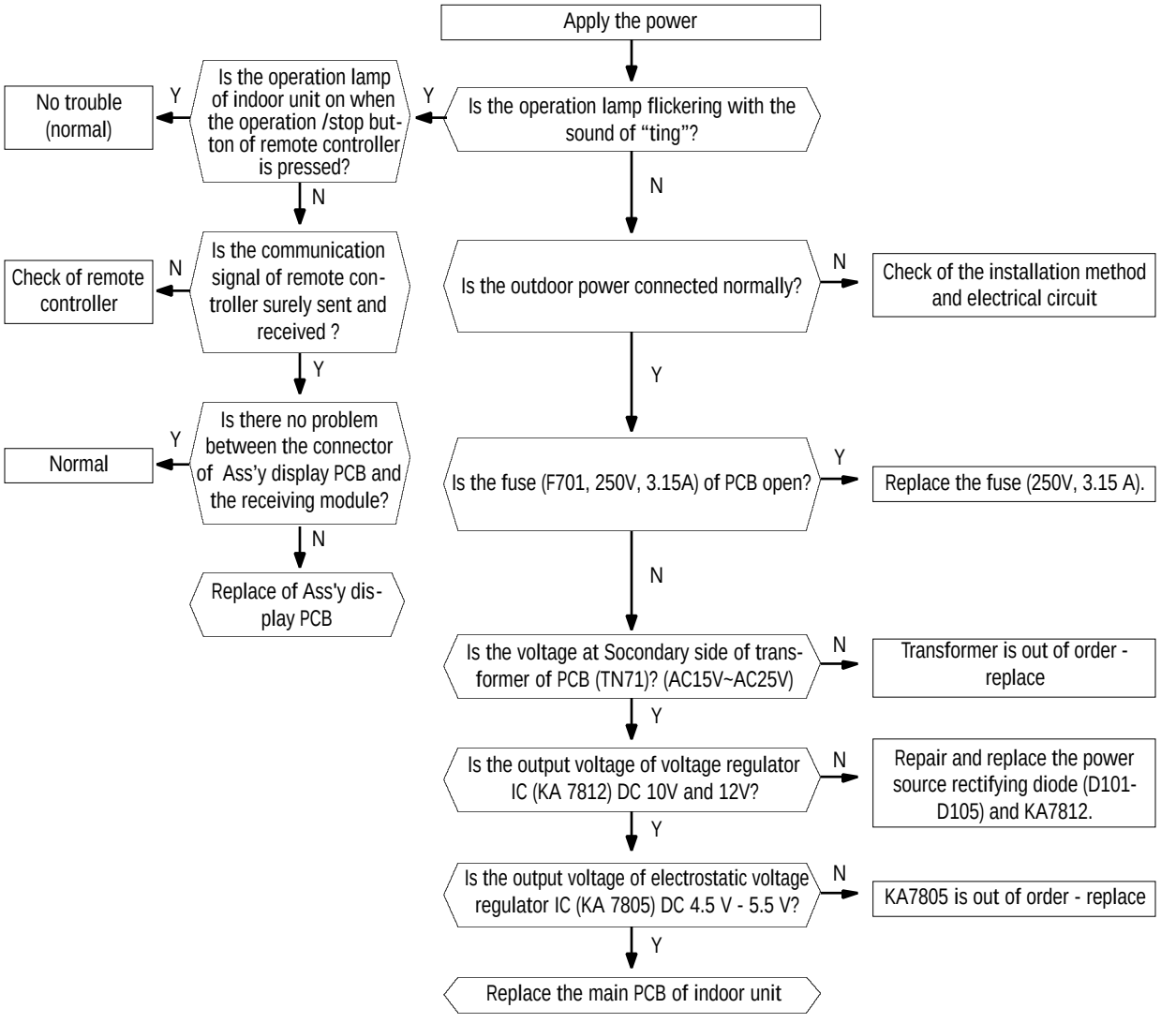
1. Once the test is started, the COMP is on and Good (displayed Gd) or Error (displayed Er) is displayed after 4 minutes .
   : Taking difference between the present temperature of indoor heat exchanger and the temperature 4 minutes later, if the temperature difference is over 5°C, the connection is good or if the temperature difference is below 5°C, the connection is bad.
2. If the result of the test operation is good operation, is possible for 30 minutes max.
   If there is an error, the outdoor unit shall be stopped immediately.
   If an error occurs, push switch S/W-A or S/W-B once to resume from the error status. Restart is then possible.
3. Once the test operation is completed, push switch S/W-A or S/W-B to finish the test.
4. Once the test is completed, operate the indoor unit normally.
5. Check the operation is normal. Start up is over.

5-3 Fault Diagnosis by Symptom

5-3-1 When the power voltage is not available

1) Inspection items
   (1) Is the power voltage is normal? (The rating voltage ±10% range)
   (2) Is the power cord is correctly connected and is the contact good?
   (3) Does the sound "ting" come out with the operation lamp (green) flickering when the power is applied?
   If it is not flickering, do inspect and repair in accordance with the following inspection sequence.

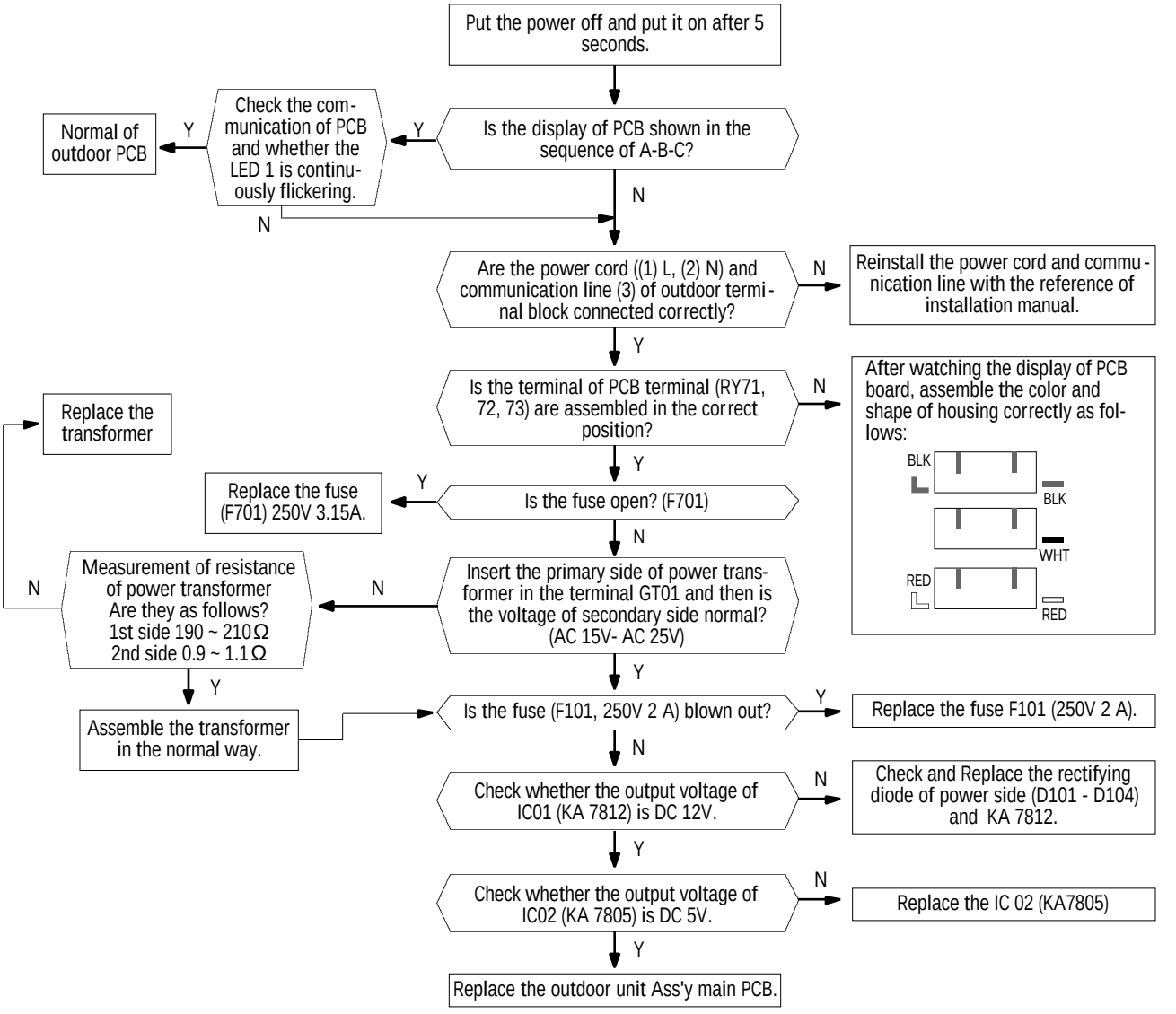
2) Inspection sequence


Apply the power
Is the operation lamp flickering with the sound of "ting"?
Y
Is the operation lamp of indoor unit on when the operation /stop button of remote controller is pressed?
Y
No trouble (normal)
N
Is the communication signal of remote controller surely sent and received ?
N
Check of remote controller
Y
Is there no problem between the connector of Ass'y display PCB and the receiving module?
Y
Normal
N
Replace of Ass'y display PCB
N
Is the outdoor power connected normally?
N
Check of the installation method and electrical circuit
Y
Is the fuse (F701, 250V, 3.15A) of PCB open?
Y
Replace the fuse (250V, 3.15 A).
N
Is the voltage at Socondary side of transformer of PCB (TN71)? (AC15V~AC25V)
N
Transformer is out of order - replace
Y
Is the output voltage of voltage regulator IC (KA 7812) DC 10V and 12V?
N
Repair and replace the power source rectifying diode (D101-D105) and KA7812.
Y
Is the output voltage of electrostatic voltage regulator IC (KA 7805) DC 4.5 V - 5.5 V?
N
KA7805 is out of order - replace
Y
Replace the main PCB of indoor unit

5-3-2 No Power (Outdoor unit)

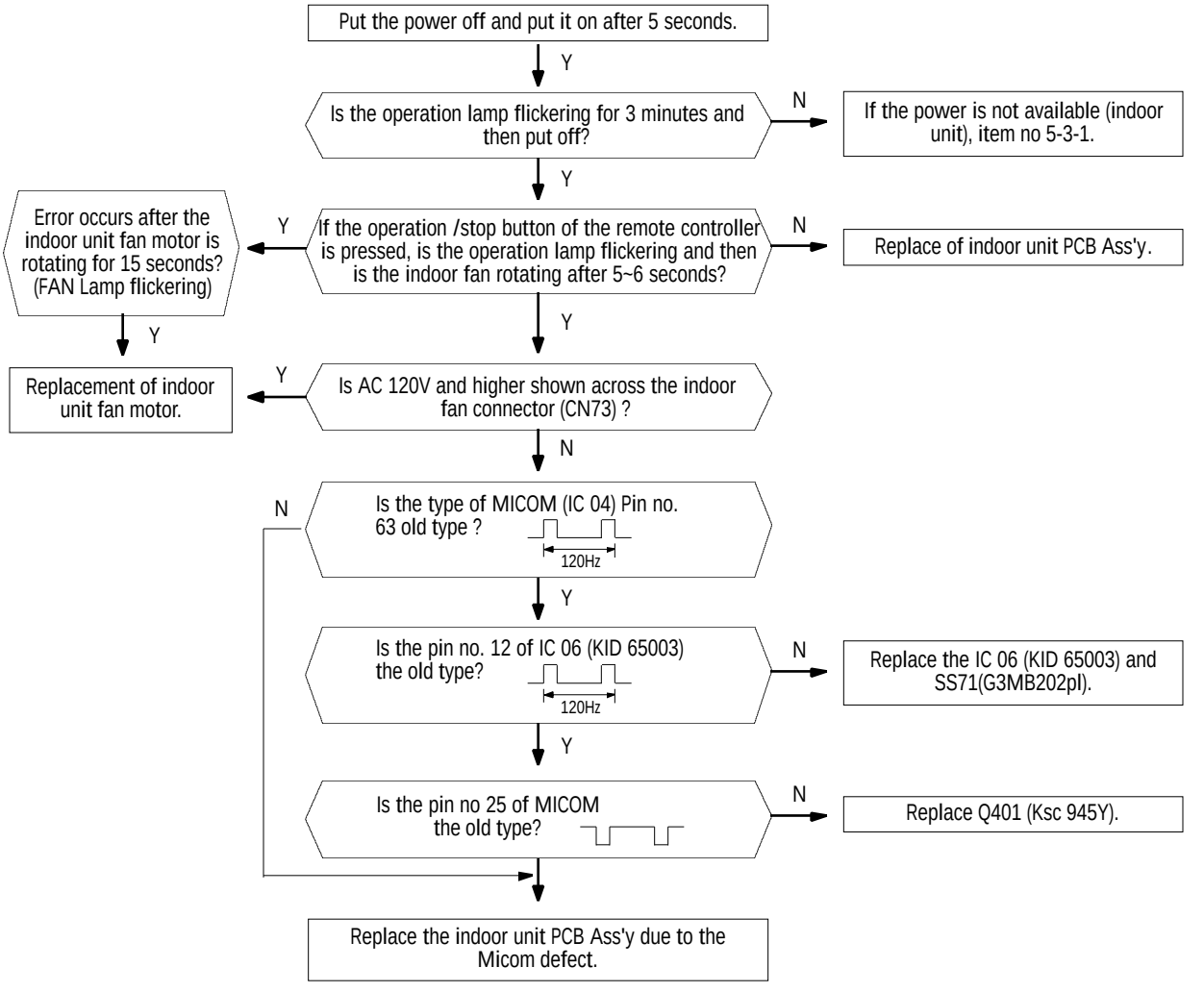
1) Inspection items
   (1) Á Is the power source normal (The rating Voltage ±10% range)?
   (2) Is the outdoor power connected normally? ((1) of terminal : L, (2) of terminal : N, (3) of terminal : communication) ?
   (3) Check whether the display of outdoor PCB(SEG1) is shown in the order of A- B - C when the power is applied.
   If the display (SEG 1) is not shown the inspection and repair shall be performed in the sequence of the following:

2) Inspection sequence


Put the power off and put it on after 5 seconds.
Is the display of PCB shown in the sequence of A-B-C?
Y
Check the communication of PCB and whether the LED 1 is continuously flickering.
Y
Normal of outdoor PCB
N
N
Are the power cord ((1) L, (2) N) and communication line (3) of outdoor terminal block connected correctly?
N
Reinstall the power cord and communication line with the reference of installation manual.
Y
Is the terminal of PCB terminal (RY71, 72, 73) are assembled in the correct position?
N
After watching the display of PCB board, assemble the color and shape of housing correctly as follows:
BLK
BLK
WHT
RED
RED
Y
Is the fuse open? (F701)
Y
Replace the fuse (F701) 250V 3.15A.
N
Insert the primary side of power transformer in the terminal GT01 and then is the voltage of secondary side normal? (AC 15V- AC 25V)
N
Measurement of resistance of power transformer Are they as follows? 1st side 190 ~ 210Ω 2nd side 0.9 ~ 1.1Ω
N
Replace the transformer
Y
Assemble the transformer in the normal way.
Y
Is the fuse (F101, 250V 2 A) blown out?
Y
Replace the fuse F101 (250V 2 A).
N
Check whether the output voltage of IC01 (KA 7812) is DC 12V.
N
Check and Replace the rectifying diode of power side (D101 - D104) and KA 7812.
Y
Check whether the output voltage of IC02 (KA 7805) is DC 5V.
N
Replace the IC 02 (KA7805)
Y
Replace the outdoor unit Ass'y main PCB.

5-3-3 When the fan of indoor unit does not operate

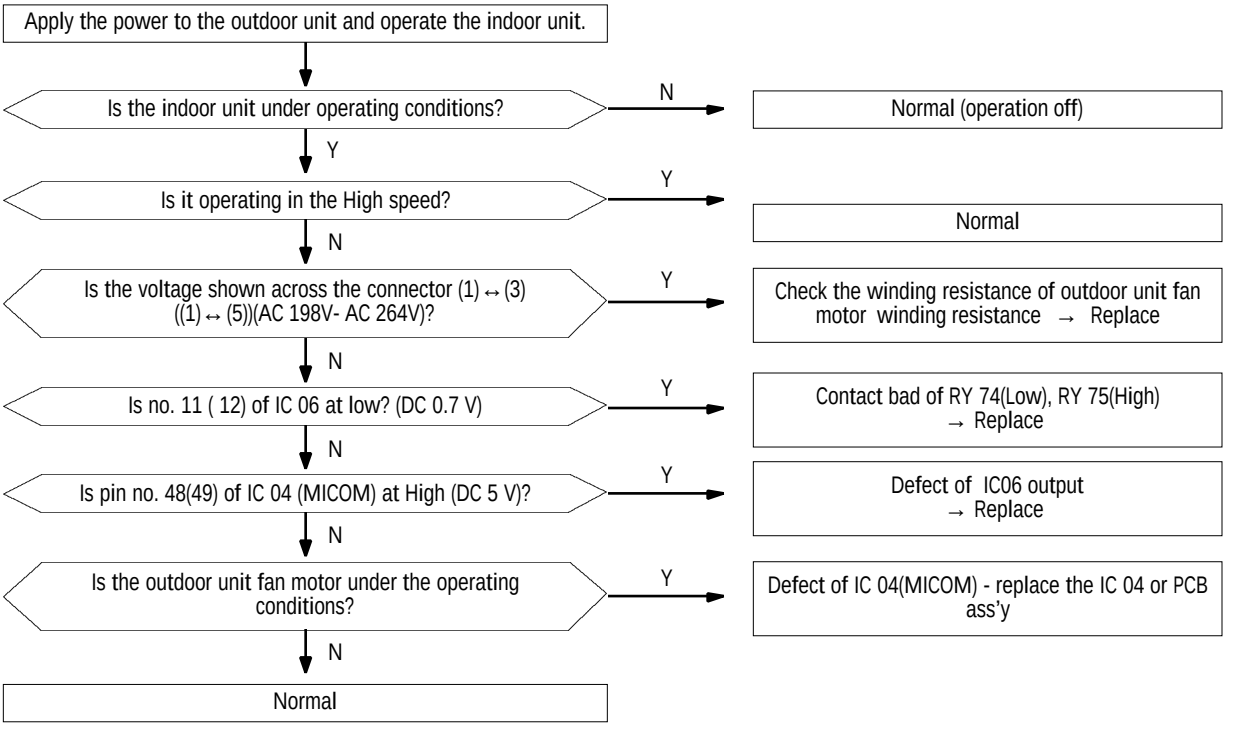
1) Inspection items
   (1) Is the power voltage normal?
   (2) Is the connector of indoor fan with the good contact? (CN73)
   (3) Is the soldering status of running condenser (CR71) with the good contact?
   (4) Is connector of the Hall IC with the good contact (CN 43) ?
   (5) Is the indoor fan rotating when it is under operation mode?
   (6) Is the FAN LED (green) flickering when the indoor fan stalled (for more than 15 seconds) and the trouble condition of speed detecting part?


Put the power off and put it on after 5 seconds.
Y
Is the operation lamp flickering for 3 minutes and then put off?
N
If the power is not available (indoor unit), item no 5-3-1.
Y
Error occurs after the indoor unit fan motor is rotating for 15 seconds? (FAN Lamp flickering)
Y
If the operation /stop button of the remote controller is pressed, is the operation lamp flickering and then is the indoor fan rotating after 5~6 seconds?
N
Replace of indoor unit PCB Ass'y.
Y
Y
Replacement of indoor unit fan motor.
Y
Is AC 120V and higher shown across the indoor fan connector (CN73) ?
N
N
Is the type of MICOM (IC 04) Pin no. 63 old type ?
120Hz
Y
Is the pin no. 12 of IC 06 (KID 65003) the old type?
120Hz
N
Replace the IC 06 (KID 65003) and SS71(G3MB202pl).
Y
Is the pin no 25 of MICOM the old type?
N
Replace Q401 (Ksc 945Y).
Replace the indoor unit PCB Ass'y due to the Micom defect.

5-3-4 When the outdoor unit fan does not operate

1) Inspection items
   (1) The outdoor unit fan motor operates only when the operating conditions are satisfied and is selected by the RY74(LOW) and PY75(HI) to rotate.
   (2) Is the power voltage normal?
   (3) Is the contact of outdoor unit fan motor (CN 73) good?
   (4) Is the winding resistance of outdoor unit fan motor 58Ω at Hi side and 143Ω at low side?
   (5) The outdoor unit fan motor operates with Hi at over 28°C and low at below 26°C during the cooling operation, and operates with Hi at below 14°C and low at over 15°C during the heating operation.

2) Inspection sequence

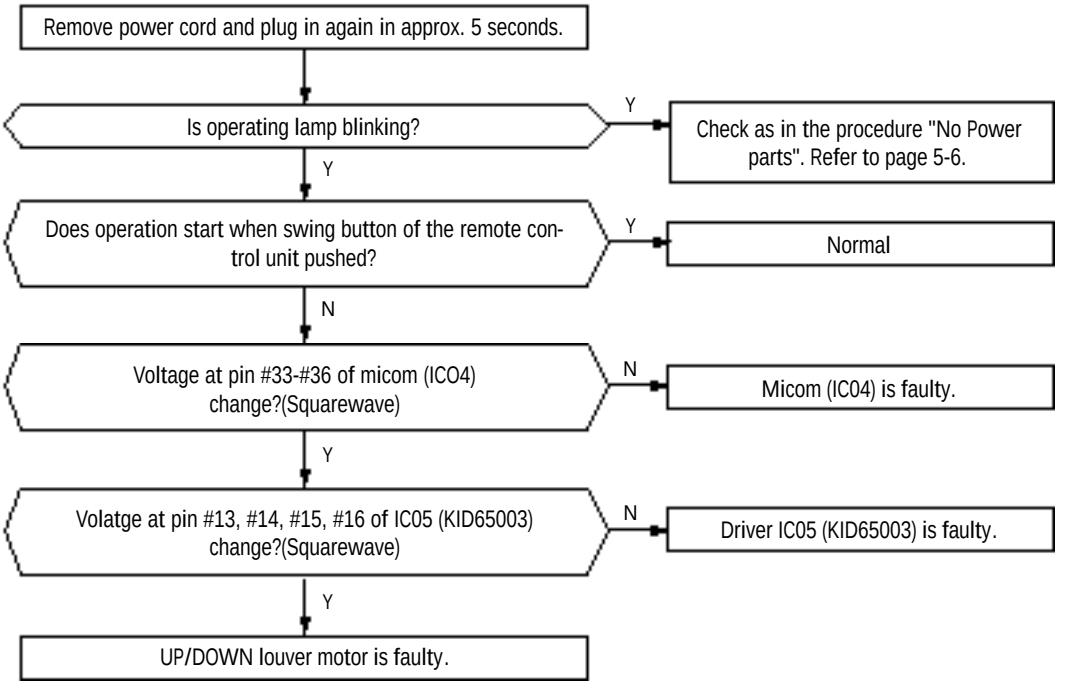

Apply the power to the outdoor unit and operate the indoor unit.
Is the indoor unit under operating conditions?
N
Normal (operation off)
Y
Is it operating in the High speed?
Y
Normal
N
Is the voltage shown across the connector (1) ↔ (3) ((1) ↔ (5))(AC 198V- AC 264V)?
Y
Check the winding resistance of outdoor unit fan motor winding resistance → Replace
N
Is no. 11 (12) of IC 06 at low? (DC 0.7 V)
Y
Contact bad of RY 74(Low), RY 75(High) → Replace
N
Is pin no. 48(49) of IC 04 (MICOM) at High (DC 5 V)?
Y
Defect of IC06 output → Replace
N
Is the outdoor unit fan motor under the operating conditions?
Y
Defect of IC 04(MICOM) - replace the IC 04 or PCB ass'y
N
Normal

* Operating specification of the FAN of outdoor unit
   (1) When the COMP is under the COMP ON condition during the cooling and heating operation, Hi or LOW operation is selected according to the temperature condition of outdoor room.
   (2) When A room and B room are mixed to operate , it is always under low operation.
   (3) Perform the comp ON / OFF control in the dry mode.
   (4) When it is under the operation of anti-freezing, overload protection, defrost operation, it may be Low, high or Off.
   (5) Hi = High speed, Low = Low speed

5-3-5 When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)

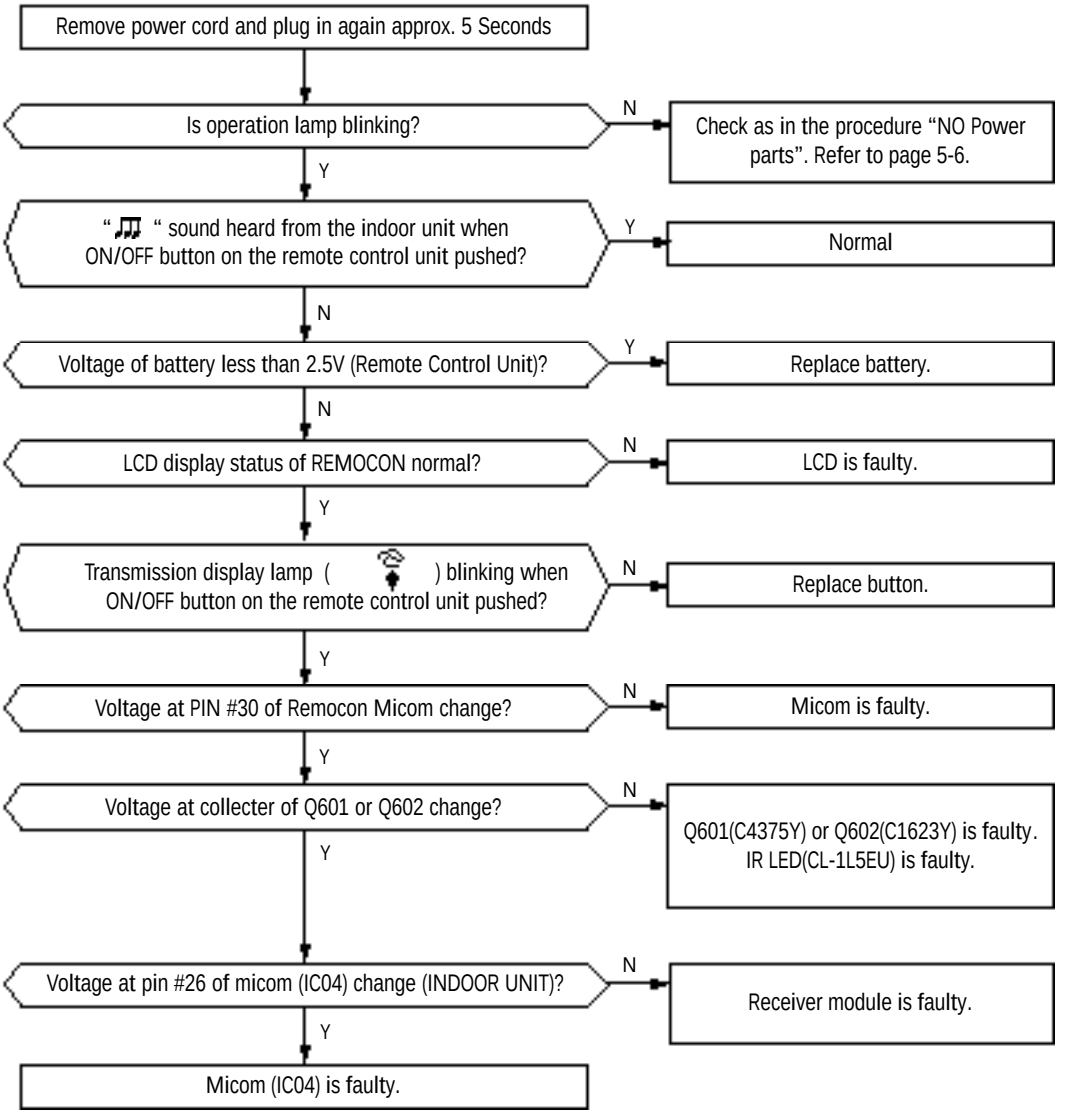
1) Checklist :
   (1) Is input voltage normal?
   (2) Is the UP / DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds.
Is operating lamp blinking?
Y
Check as in the procedure "No Power parts". Refer to page 5-6.
Y
Does operation start when swing button of the remote control unit pushed?
Y
Normal
N
Voltage at pin #33-#36 of micom (ICO4) change?(Squarewave)
N
Micom (IC04) is faulty.
Y
Volatge at pin #13, #14, #15, #16 of IC05 (KID65003) change?(Squarewave)
N
Driver IC05 (KID65003) is faulty.
Y
UP/DOWN louver motor is faulty.

5-3-6 If Operation By Remote Control Unit Is Impossible. (Initial Diagnosis)

1) Troubleshooting procedure

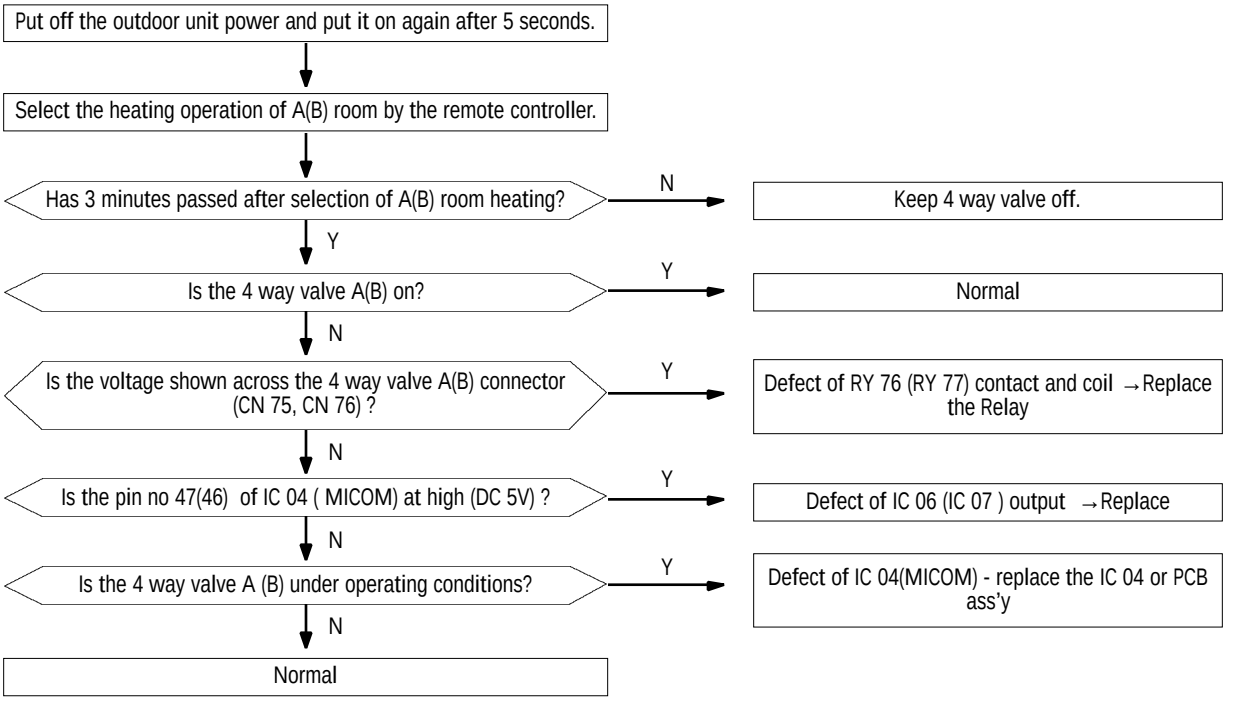

Remove power cord and plug in again approx. 5 Seconds
Is operation lamp blinking?
N
Check as in the procedure "NO Power parts". Refer to page 5-6.
Y
" ♫ " sound heard from the indoor unit when ON/OFF button on the remote control unit pushed?
Y
Normal
N
Voltage of battery less than 2.5V (Remote Control Unit)?
Y
Replace battery.
N
LCD display status of REMOCON normal?
N
LCD is faulty.
Y
Transmission display lamp ( ) blinking when ON/OFF button on the remote control unit pushed?
N
Replace button.
Y
Voltage at PIN #30 of Remocon Micom change?
N
Micom is faulty.
Y
Voltage at collecter of Q601 or Q602 change?
N
Q601(C4375Y) or Q602(C1623Y) is faulty.
IR LED(CL-1L5EU) is faulty.
Y
Voltage at pin #26 of micom (IC04) change (INDOOR UNIT)?
N
Receiver module is faulty.
Y
Micom (IC04) is faulty.

5-3-7 When the 4 way valve (A,B) is not operating

1. Inspection items

(1) Are the 4 way valve A and B under the operating conditions?
(When the COMP A (4 way valve A) and COMP B (4 way valve B) are on during the heating operating)
(2) Is the power voltage normal?
(3) Is the connecting of 4 way valve A (CN 75) and B (CN 76) good?

2) Inspection sequence


Put off the outdoor unit power and put it on again after 5 seconds.
Select the heating operation of A(B) room by the remote controller.
Has 3 minutes passed after selection of A(B) room heating?
N
Keep 4 way valve off.
Y
Is the 4 way valve A(B) on?
Y
Normal
N
Is the voltage shown across the 4 way valve A(B) connector (CN 75, CN 76) ?
Y
Defect of RY 76 (RY 77) contact and coil →Replace the Relay
N
Is the pin no 47(46) of IC 04 (MICOM) at high (DC 5V) ?
Y
Defect of IC 06 (IC 07) output →Replace
N
Is the 4 way valve A (B) under operating conditions?
Y
Defect of IC 04(MICOM) - replace the IC 04 or PCB ass'y
N
Normal

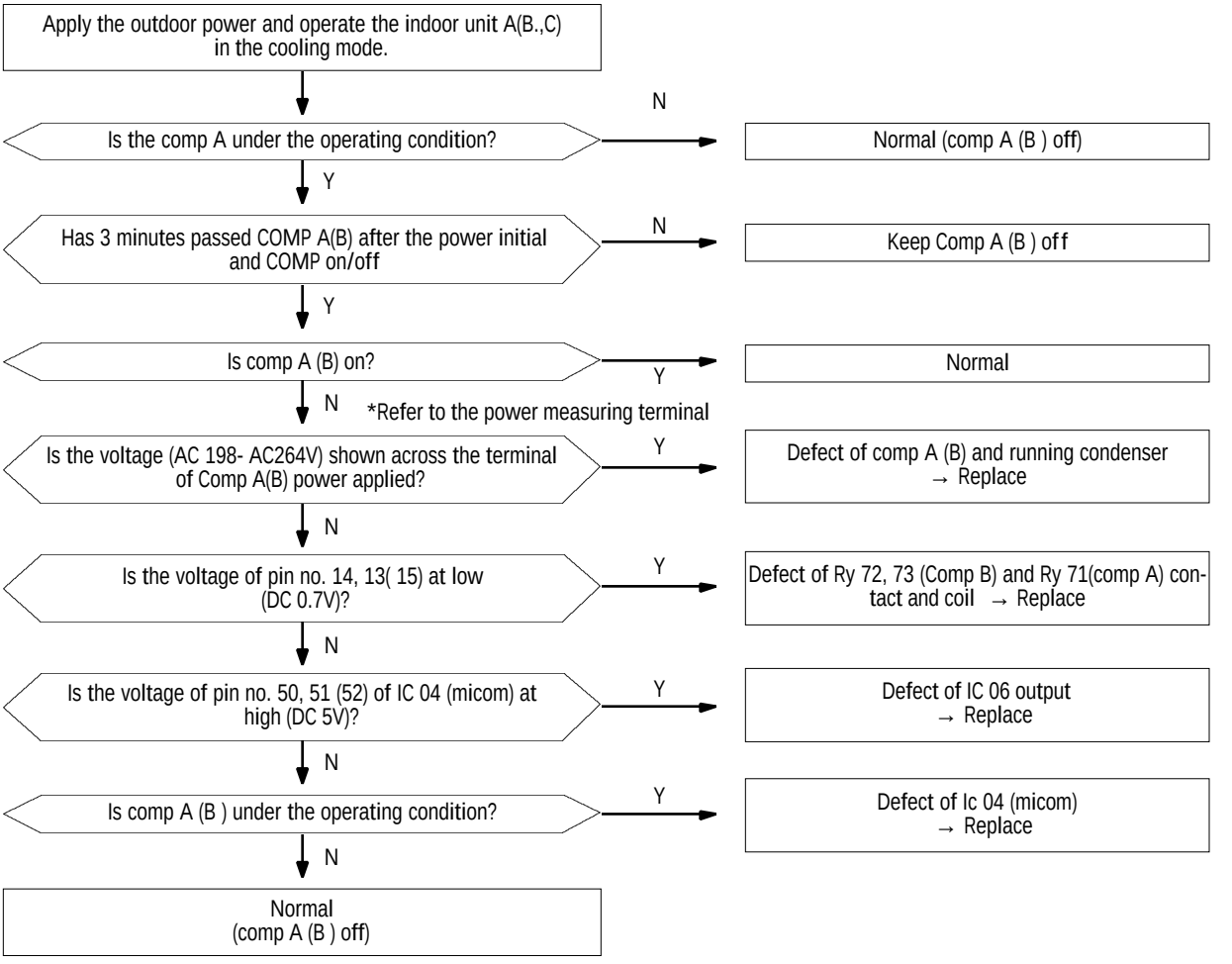
*4 way valve operating conditions
(1) During the defrost control, put the 4 way valve A(B) off.
(2) During the heating operation put the 4 way valve A(B) on.
(3) The changeover of heating to cooling : put the 4 way valve off immediately (in case of B and C room).
(4) The changeover of cooling to heating : it is on after 170 seconds delay.

5-3-8 When the compressor does not operate

1) Inspection items

(1) Is the COMP A under the operating conditions? (cooling operating of A, B(C) room)
(2) Is the power voltage normal? (AC 198- AC 264V)
(3) Are the connector connection of COMP A(RY 72, 73) and B(RY 71) good?
(4) The COMP A(B) is operated on and off in accordance with the operating conditions of indoor unit of A (B. C) room.

2) Inspection sequence

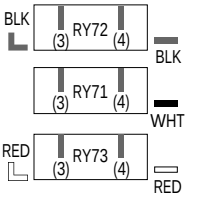

Apply the outdoor power and operate the indoor unit A(B.,C) in the cooling mode.
Is the comp A under the operating condition?
N
Normal (comp A (B) off)
Y
Has 3 minutes passed COMP A(B) after the power initial and COMP on/off
N
Keep Comp A (B) off
Y
Is comp A (B) on?
Y
Normal
N
*Refer to the power measuring terminal
Is the voltage (AC 198- AC264V) shown across the terminal of Comp A(B) power applied?
Y
Defect of comp A (B) and running condenser → Replace
N
Is the voltage of pin no. 14, 13(15) at low (DC 0.7V)?
Y
Defect of Ry 72, 73 (Comp B) and Ry 71(comp A) contact and coil → Replace
N
Is the voltage of pin no. 50, 51 (52) of IC 04 (micom) at high (DC 5V)?
Y
Defect of IC 06 output → Replace
N
Is comp A (B) under the operating condition?
Y
Defect of Ic 04 (micom) → Replace
N
Normal (comp A (B) off)

* Comp A (B) operating conditions

(1) Comp A : Comp on /off control in accordance with the A room during the heating and cooling indoor unit operation
(2) Comp B : Comp on /off control in accordance with the B(C) room during the heating and cooling indoor unit operation

* Comp A(B) power measuring terminal

(1) Comp A measuring ; RY 73 (4) ↔ RY 72 (4)
(2) Comp B measuring ; RY 71 (4) ↔ RY 72 (4)
(3) Power input ; RY 72 (3) ↔ RY 73(3)



5-4 PCB Inspection

5-4-1 Cautions for Part Replacement

1. The human body carries much static electricity. Before touching a part for repair, replacement or the similar purpose, be sure to touch a grounded metallic portion by hand to let the static electricity go through the matallic portion to the earth. Especially when handling any micro computer or IC, carefully remove such static electricity before touching them.

2. When repairing any part on a work bench, be sure to place an insulative sheet on the bench and always keep the sheet surface neat without any metal fragments. If any such fragment touches a part, a secondary trouble will possibly be caused in the part.

3. Before replacing any parts, be sure to turn off the power supply. If such replacement is done with the power supply kept on, an electric shock, short circuit or destruction of a part may result.

4. During replacement or repair of a part, carefully handle it : The printed circuit board has fine lead wires (jumper wires) and glass-made parts (diode) on its substrate. So if a circuit board is roughly handled, such lead wires and parts will be easily broken or damaged by bending or shock.

5. When soldering the lead wires of any new part, be sure to polish them using an emery paper or the like before solding them. Since the lead wires of any new part are covered with an oxide film, solder cannot adhere to the lead wires if not polished.

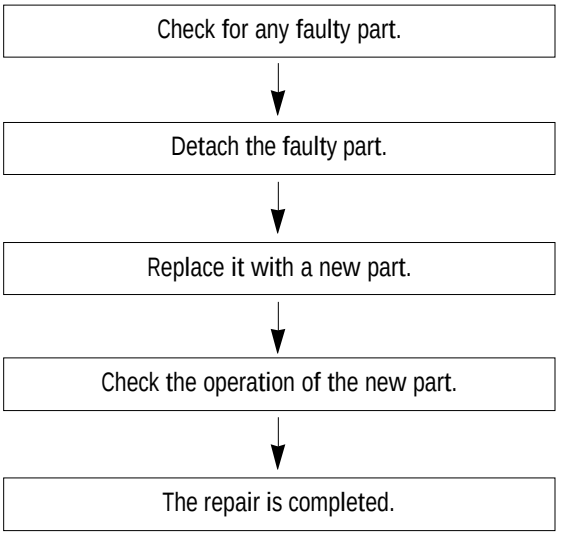
6. When soldering any part, care should be exercised not to apply any high-wattage soldering iron to the part for a long time. Some parts are of so low a heat resistance that they may be broken or have the properties changed if a soldering iron is so applied (Otherwise, the pattern may possibly be separated and raised).

7. The heat of the soldering iron should be transfered to the entire object to be soldered. If the solder pieces are not well fused due to insufficient transfer of the heat from the soldering iron, no satisfactory electrical continuity can be assured even if the soldered objects appear well connected to each other.

8. The solder used should be limited to a minimum. If excessive solder is used, it will cause inter-pattern contact, which may cause malfunction of the circuit.

5-4-2 Procedure

The parts should be replaced in the following procedure.


Check for any faulty part.
Detach the faulty part.
Replace it with a new part.
Check the operation of the new part.
The repair is completed.

5-4-3 Detailed Procedure

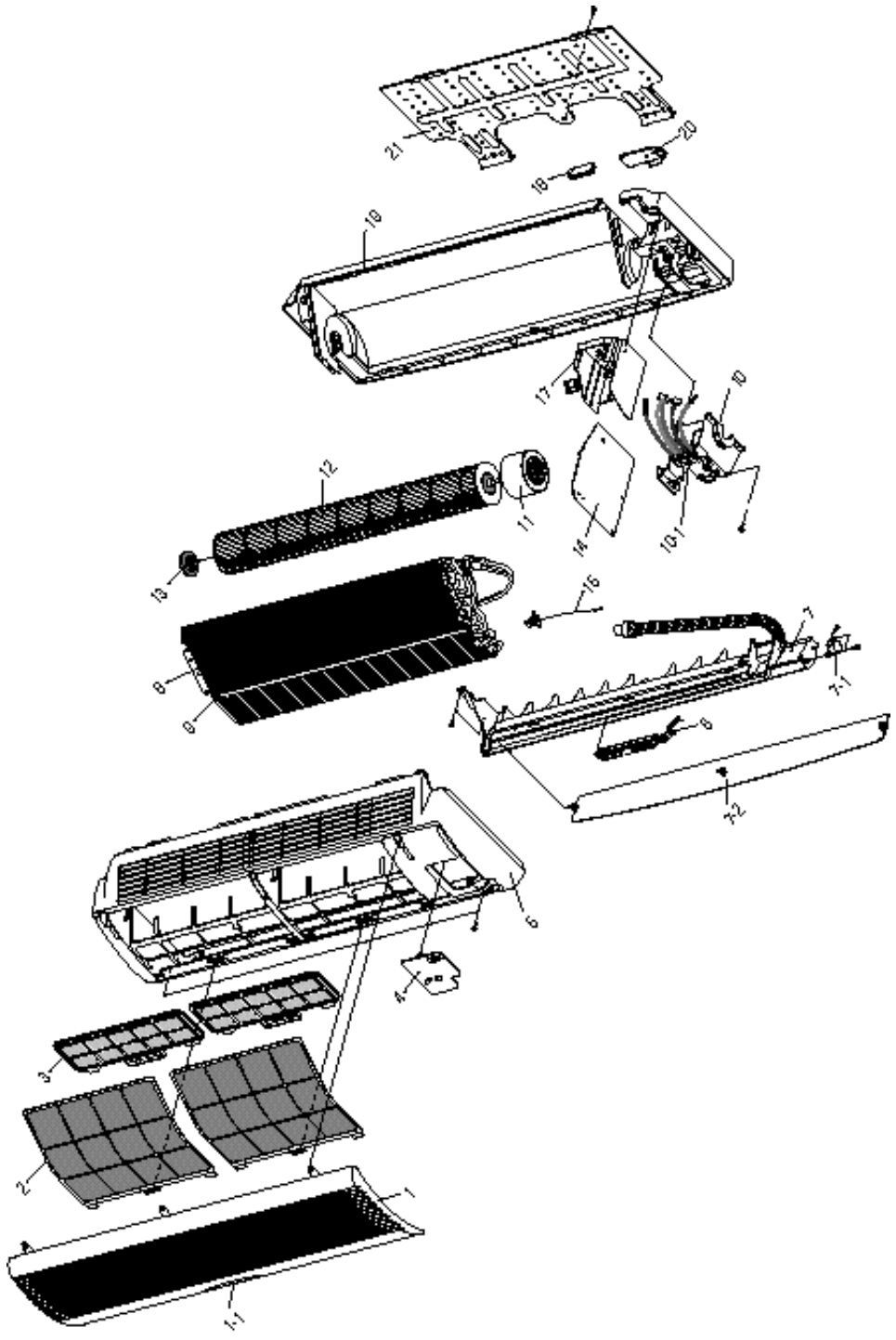
No.	Malfunction	Checking point (symptoms)	Causes
1	Pull out the power plug from the AC terminal and confirm the fuse on the PCB assembly	1. Is the broken?	1. Voltage over 2. Indoor unit fan motor short-circuit.
2	Turn the power on. If lamp blinks trouble is not related to the items 1 through 4 on the right.	Voltage check	
		1. AC voltage at both end of transformer Primary? 198 - 264V~	1. Irregular power code or power fuse, or poor wiring.
		2. AC voltage at both end of transformer secondary? 14- 18Vac	2. Transformer is faulty.
		3. DC voltage at OUT and GND of IC01 (KA7812)? 12VDC	3. Power circuit is faulty.
		4. DC voltage at OUT and GND of IC02? 5VDC	4. Power circuit is faulty.
		5. DC voltage at Q201 Base and GND change? squarewave	5. Q201 is faulty. D101~D104 (IN4007)
3	Set TURBO operating mode when RMC switch pushed after a delay of 3 minutes. (A-unit and B-unit)	Voltage check	
		1. Voltage of relay (RY71, 72, 73) coil Voltage at pin#13, 14, 15 of IC07 : 12VDC	1. Relay(RY 71) coil is open. IC6(KID65003A) is faulty.
		2. Voltage at RY72 No ③ and RY71 No ③, RY72 No ③ and RY73 No ③, 198- 264V~	2. Relay contactor is faulty or Relay is faulty
4	Set operating mode when RMC switch pushed. 1. TURBO mode	1. Compressor does not operate.	1. Temperature of Heat exchange is lower. 2. PCB is faulty. 3. Room sensor or Heat exchanger temperature sensor is faulty
5	Set operating mode when RMC switch pushed. 1. [FAN] mode 2. Fan speed [Hi] 3. Continuously operation	1. Voltage at ③⑤ both ends of CN73 : above 180V~ 2. Indoor unit fan motor does not operate.	1. Indoor unit fan motor is faulty. 2. Poor connection of indoor fan motor and connector of RPM sensing (CN43)

5-5 Fault Diagnosis of Major Parts

<table>
<tr><th>Parts</th><th colspan="2">Diagnosis</th></tr>
<tr><td rowspan="3">Temp.Sensor
Heat ex. Sensor</td><td colspan="2">Measure resistance with a tester.</td></tr>
<tr><td>Normal</td><td>8KΩ~27KΩ at ambient temperature (+0°C ~ +30°C)</td></tr>
<tr><td>Abnormal</td><td>∞, O Ω … open or short</td></tr>
<tr><td rowspan="5">Indoor Fan Motor</td><td colspan="2">Measure resistance between terminals (CN73) with a tester</td></tr>
<tr><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><th>between</th><th>Resistance</th></tr>
<tr><td>Red, Yellow</td><td>190±10Ω</td></tr>
<tr><td>Red, Blue</td><td>170±10Ω</td></tr>
</table></td></tr>
<tr><td>Abnormal</td><td></td></tr>
<tr><td colspan="2">Measure the voltage between ground and signal wire of the fan motor (CN43)</td></tr>
<tr><td>Normal</td><td>
<table>
<tr><th>between</th><th>Voltage</th></tr>
<tr><td>Gray, Orange</td><td>05V~4.5V</td></tr>
<tr><td>Yellow, Orange</td><td>5V</td></tr>
</table></td></tr>
<tr><td></td><td>Abnormal</td><td>Abnormal if voltage does not change from 0V to 5V.</td></tr>
<tr><td rowspan="2">Outdoor Fan Motor</td><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><th>between</th><th>Resistance</th><th>Remark</th></tr>
<tr><td>Red, Yellow</td><td>143±10Ω</td><td>Low</td></tr>
<tr><td>Blue, Red</td><td>58±10Ω</td><td>High</td></tr>
</table></td></tr>
<tr><td>Abnormal</td><td>∞, O Ω … open or short</td></tr>
<tr><td rowspan="3">Stepping Motor
(UP/DOWN swing motor)</td><td colspan="2">Measure resistance between red wire and each terminal.</td></tr>
<tr><td>Normal</td><td>Approx. 380Ω at ambient temperature (20°C ~30°C)</td></tr>
<tr><td>Abnormal</td><td>∞, O Ω … open or short</td></tr>
</table>

6. Exploded Views and Parts List

6-1 Indoor Unit

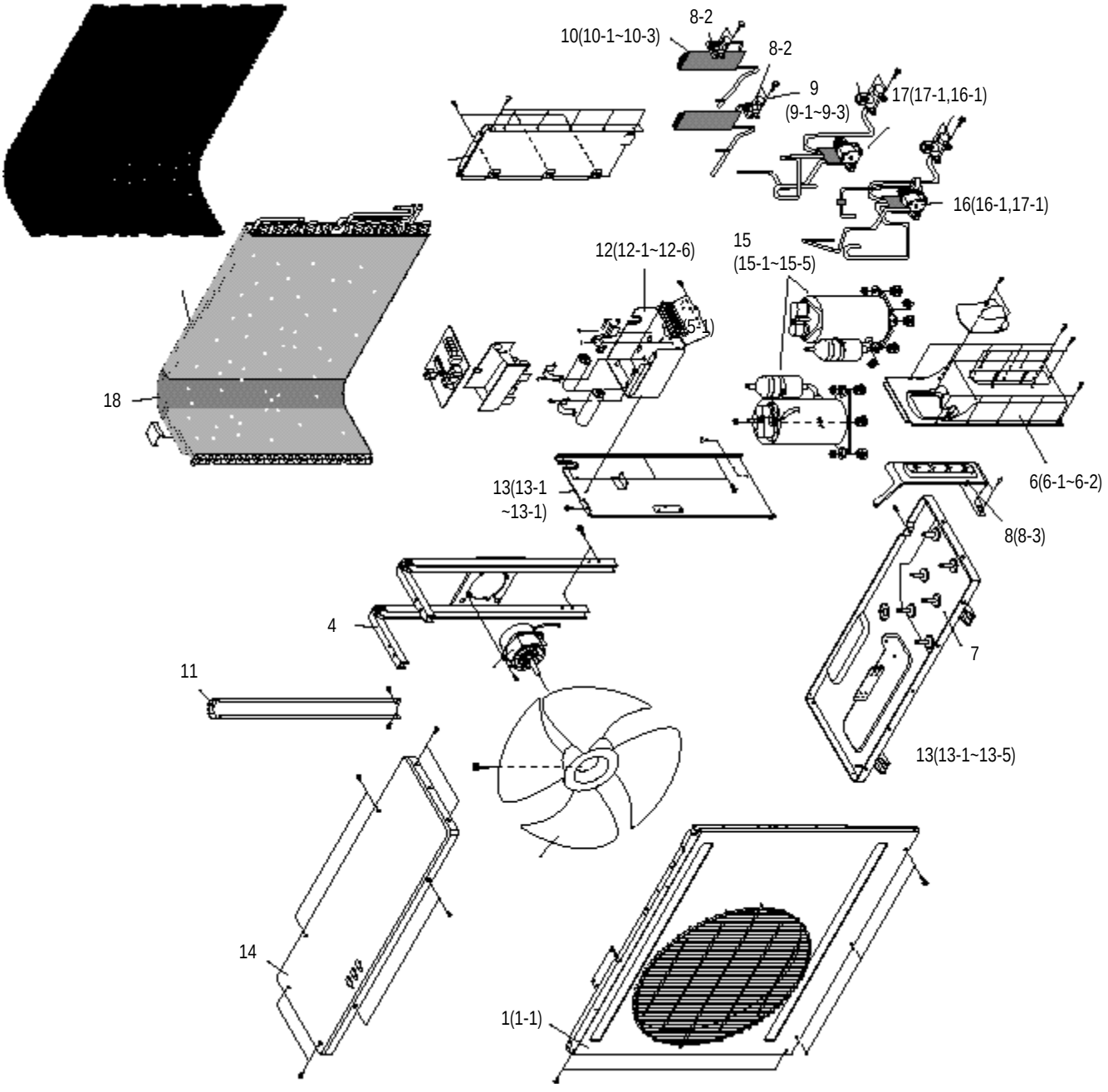


■ Parts List

No.	CODE NO	Description	Specification	Q'TY				Remark
				AD18A1(B1)E09	AD24A1(B1)E12	AD19A1(B1)E07	AD19A1(B1)E12	
1	DB64-10140A	GRILLE AIR INLET	ABS	1	1	1	1	⚠
1-1	DB64-70073A	PANEL CENTER DISPLAY	PC	1	1	1	1	
2	DB63-30131A	GUARD AIR FILTER	PP	2	2	2	2	⚠
3	DB74-10091A	ASS´Y FILTER	CLEANER/CARBON	-	-	-	-	
4	DB63-10472B	COVER TERMINAL	HIPS	1	1	1	1	⚠
5	DB92-70075E	ASS´Y FRONT PANEL	ASS´Y	1	1	1	1	
6	DB93-10560B	ASS´Y PCB DISPLAY	ASS´Y	1	1	1	1	⚠
	DB93-10561B	ASS´Y PCB DISPLAY	ASS´Y	1	1	1	1	
7	DB94-10088A	ASS´Y TRAY DRAIN	ASS´Y	1	1	1	1	⚠
7-1	DB95-20138A	ASS´Y STEP MOTOR U/D	DC12V.600GR	1	1	1	1	
7-2	DB66-30153A	BLADE-H	HIPS	1	1	1	1	⚠
8	DB75-40081B	ASS´Y EVAP	ASS´Y	1	-	1	-	
	DB75-40081A	"	ASS´Y	-	1	-	1	⚠
9	DB67-30058C	SPACER EVAP	PVC	1	1	1	1	
10	DB61-00011A	HOLDER MOTOR ASS´Y	ASS´Y	1	1	1	1	⚠
10-1	DB65-00005A	ASS´Y TERMINAL BLOCK	ASS´Y	1	1	1	1	
11	DB31-10078H	MOTOR FAN IN	AMPFS040WTVB	1	1	1	1	⚠
12	DB94-30141A	ASS´Y-C-F-FAN	Ø95 X 619.4mm	1	1	1	1	
13	DB94-40017A	ASS´Y BEARING	ASS´Y	1	1	1	1	⚠
14	DB93-10585A	ASS´Y MAIN PCB	ASS´Y	1	-	-	-	
	DB93-10630A	ASS´Y MAIN PCB	ASS´Y	-	-	1	-	
	DB93-10586A	ASS´Y MAIN PCB	ASS´Y	-	1	-	-	
	DB93-10630B	ASS´Y MAIN PCB	ASS´Y	-	-	-	1	
15	DB32-10008D	THERMISTOR ASS´Y	ASS´Y	1	1	1	1	⚠
17	DB61-10151A	CASE-CONTROL	ABS(94-5V)	1	1	1	1	
18	DB61-60093A	BODY-BUSH	HIPS	1	1	1	1	⚠
19	DB94-20030C	ASS´Y BACK BODY	ASS´Y	1	1	1	1	
20	DB61-40247A	HOLDER PIPE	HIPS	1	1	1	1	⚠
21	DB70-10618A	PLATE HANGER	SGCC-M	1	1	1	1	

6-2 Outdoor Unit (UD24A1(B1)E2)

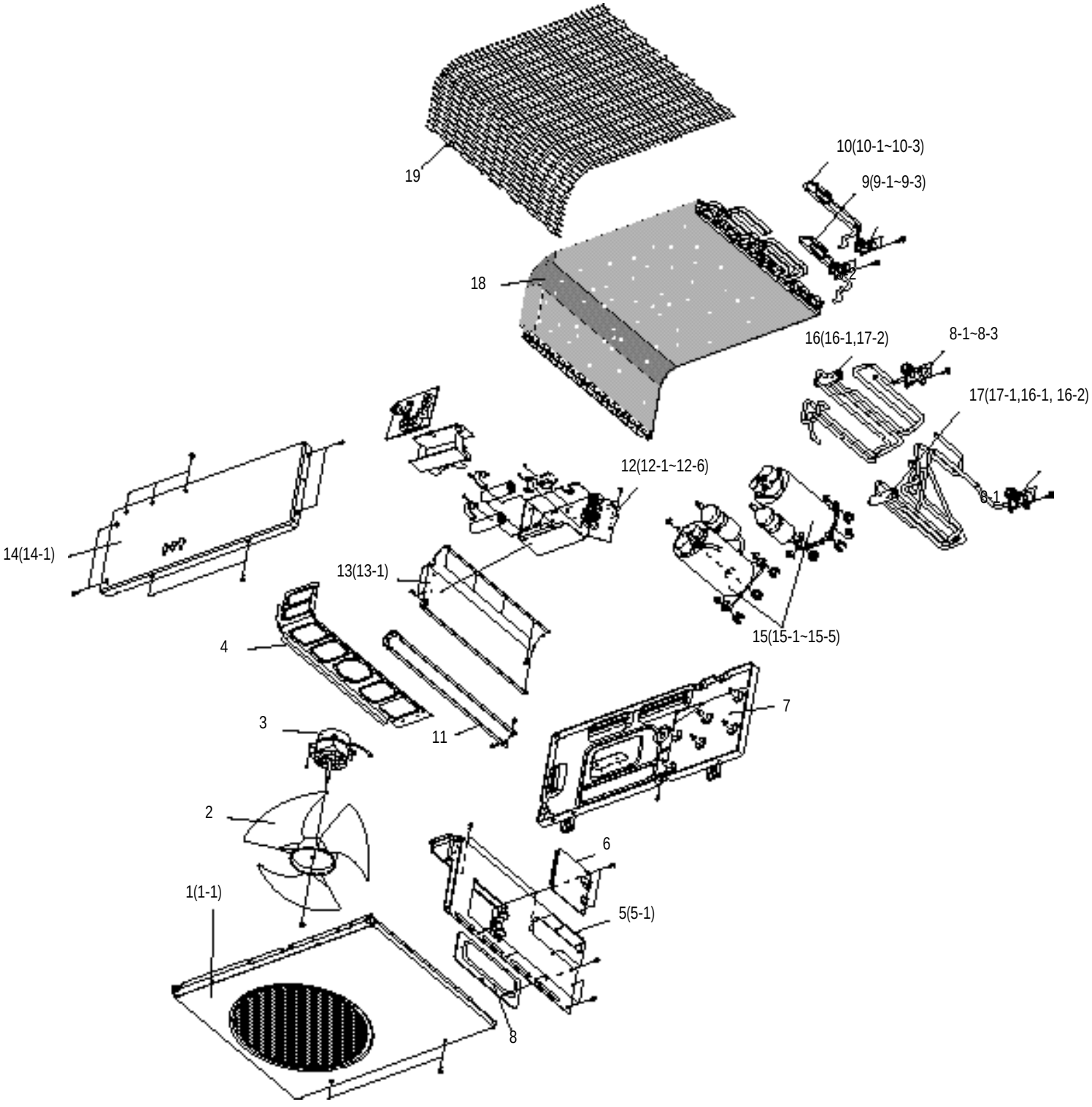
6-2-1 UD24A1(B1)E2



■ Parts List

No.	CODE NO	Description	Specification	Q'TY	Remark
1	DB90-10163D	ASS'Y-WELD FRONT	SC-90073T	1	
1-1	DB72-50520A	INSUL FRONT OUT	FOAM PU	1	
2	DB67-50067A	FAN-PROPELLER	AS+G/F20%	1	
3	DB31-10083C	MOTOR-FAN OUT	OSM-8065SRC	1	⚠
4	DB61-20094A	BASE-MOTOR	SGCC-M	1	
5	DB64-60134A	CABINET-SIDE	SECC-P	1	
5-1	DB72-60053A	INSUL SIDE CABI	FOAM PU + FOAM PE	1	
6	DB90-40120A	ASS'Y-COVER VALVE	ASS'Y	1	
6-1	DB63-10433A	COVER-CONTROL	PP	1	
6-2	DB63-10434A	COVER-VALVE	pp	1	
7	DB90-20207A	ASS'Y-BASE OUT	AM24A1B2	1	
8	DB99-10165A	ASS'Y-VALVE	AD24A1E2	1	
8-1	DB62-40101A	VALVE-PACKED 1/2"	1/2”	2	
8-2	DB62-40099A	VALVE-PACKED 1/4"	1/4”	2	
8-3	DB61-30510A	BRACKET-VALVE	SC-90073T	1	
9	DB99-10166A	ASS'Y CHECK V/V, A	ASS'Y	1	
9-1	DB62-40034A	VALVE CHECK	30kg/m2G	1	
9-2	DB62-31965D	TUBE CAPI (C)	ID 1.7 x 1200	1	
9-3	DB62-31966C	TUBE CAPI (H)	ID 1.5 x 500	1	
10	DB99-10167A	ASS'Y CHECK V/V, B	ASS'Y	1	
10-1	DB62-40034A	VALVE CHECK	30kg/m2G	1	
10-2	DB62-31965D	TUBE CAPI (C)	ID 1.7 x 1200	1	
10-3	DB62-31966D	TUBE CAPI (H)	ID 1.5 x 500	1	
11	DB63-30027C	GUARD-COND	SC-90073T	1	
12	DB93-00030A	ASS'Y CONTROL OUT	UD24A1E2	1	⚠
12-1	DB61-10199A	CASE CONTROL OUT	SGCC-M	1	
12-2	DB61-10200A	CASE PCB OUT	P.P	1	
12-3	2501-001062	C-OIL	30µF x 420V	2	
12-4	DB65-40072A	TERMINAL BLOCK	8P	1	
12-5	2501-000299	C-OIL	5µF x 450V	1	
12-6	DB93-10621A	ASS'Y PCB MAIN OUT	HEAT-PUMP	1	
13	DB94-50041A	ASS'Y-PARTITION	ASS'Y	1	
13-1	DB72-60099A	INSUL PARTITION	FOAM PE + FOAM PU	1	
13-2	DB67-30083A	PARTITION	SGCC-M	1	
14	DB90-10616A	ASS'Y-CABI UPPER	ASS'Y	1	
15	DB95-10062X	ASS'Y-COMP	48H124JV1E4	2	⚠
15-1	DB73-10004A	GROMMET-ISOLATOR	EPDM	6	
15-2	DB60-30028A	NUT-WASHER	M8	6	
15-3	DB60-30018A	NUT-FLANGE	P10.8	2	
15-4	DB63-10165B	COVER-TERMINAL	NORYL	2	
15-5	DB47-20001Z	OLP	MRA12030-12008	2	
16	DB99-10161A	ASS'Y 4-WAY V/V, A	ASS'Y	1	
16-1	DB62-40035A	4-WAY VALVE	SAGINOMIYA	2	
17	DB99-10162A	ASS'Y 4-WAY V/V, B	ASS'Y	1	
17-1	DB27-10003D	SOLENOID-V/V	SAGINOMIYA	1	
	DB27-10003E	SOLENOID-V/V	SAGINOMIYA	1	
18	DB75-30109A	CONDENSER	ASS'Y	1	
19	DB63-30110J	SCREEN-GUARD	P.E.H 100%	1	

6-2-2 UD18A1(B1)E2/UD19A1(B1)E2

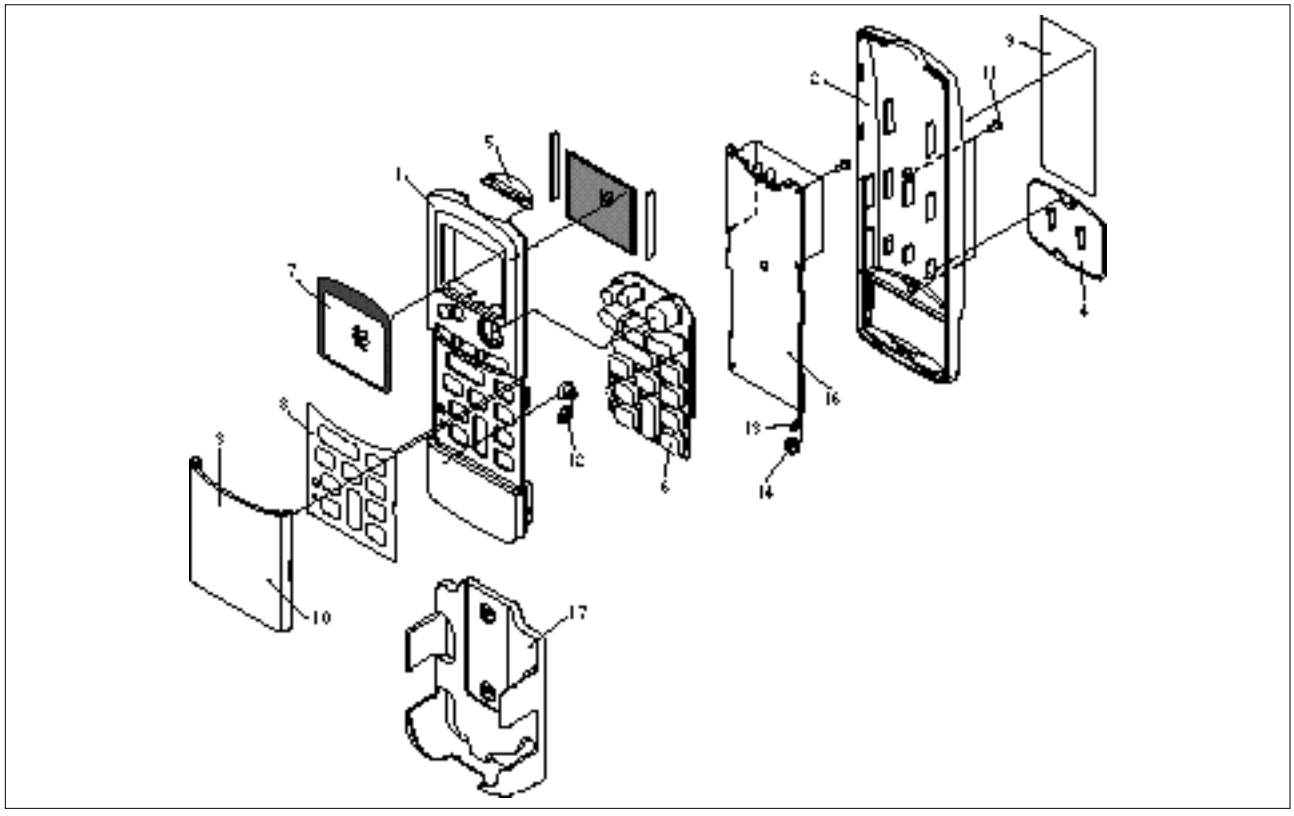


■ Parts List

No.	CODE NO	Description	Specification	Q'TY		Remark
				UD18A1(B1)E2	UD19A1(B1)E2	
1	DB90-10153J	ASS'Y-WELD FRONT	SC-90073J	1	1	
1-1	DB72-60034A	INSUL FRONT	Foam Pe + Foam Pu	1	1	
2	DB67-50063A	FAN-PROPELLER	AS+G/F20%	1	1	
3	DB31-00001B	MOTOR-FAN OUT	IC-9630SLJ5A	1	1	⚠
4	DB61-20008C	BASE-MOTOR	SGCC-M	1	1	
5	DB64-60130A	CABINET-SIDE	SECC-P	1	1	
5-1	DB72-60035A	INSUL SIDE	Foam Pe + Foom Pu	1	1	
6	DB63-40168A	ASS'Y-COVER TERMINAL	ASS'Y	1	1	
7	DB90-20211A	ASS'Y-BASE OUT	AD18A1E2	1	-	
	DB90-00018A	ASS'Y-BASE OUT	AD19A1E2	-	1	
8	DB99-10171A	ASS'Y-VALVE	AD18A1E2	1	-	
	DB99-00001A	ASS'Y-VALVE	AD19A1E2	-	1	
8-1	DB62-40095A	VALVE-PACKED 3/8"	3/8"	2	1	
8-2	DB62-00026A	VALVE-PACKED 1/2"	1/2"	-	1	
8-3	DB62-40094A	VALVE-PACKED 1/4"	1/4"	2	2	
9	DB99-10172A	ASS'Y CHECK V/V, A	ASS'Y	1	-	
	DB96-00020A	ASS'Y TUBE CAPI A	ASS'Y	-	1	
9-1	DB62-40034A	VALVE CHECK	30kg/m^{2}G	1	-	
9-2	DB62-31965C	TUBE CAPI (C)	ID 1.5 X 800	1	-	
	DB62-31965F	TUBE CAPI-A	ID 1.42 X 900	-	1	
9-3	DB62-31966B	TUBE CAPI (H)	ID 1.42 X 400	1	-	
10	DB99-10173A	ASS'Y CHECK V/V, B	ASS'Y	1	-	
	DB99-00002A	ASS'Y CHECK V/V, B	ASS'Y	-	1	
10-1	DB62-40034A	VALVE CHECK	30kg/m^{2}G	1	1	
10-2	DB62-31965C	TUBE CAPI (C)	ID 1.5 X 800	1	-	
	DB62-31965G	TUBE CAPI B	ID 1.7 X 800	-	1	
10-3	DB62-31966B	TUBE CAPI (H)	ID 1.42 X 400	1	-	
	DB62-31966C	TUBE CAPI (H)	ID 1.5 X 500	-	1	
11	DB63-30025D	GUARD-COND	SC-90073T	1	1	
12	DB93-00031A	ASS'Y CONTROL OUT	AD18A1E2	1	-	⚠
			AD19A1E2	-	1	
12-1	DB61-10199A	CASE CONTROL OUT	SGCC-M	1	1	
12-2	DB61-10200A	CASE PCB OUT	P.P	2	2	
12-3	2501-001062	C-OIL	30μF X 420V	2	2	
12-4	DB65-40072A	TERMINAL BLOCK	8P	1	1	
12-5	2501-001066	C-OIL	2.5μF X 450V	1	1	
12-6	DB93-10621A	ASS'Y-PCB MAIN OUT	HEAT-PUMP	1	1	
13	DB67-30071B	PARTITION	SGCC-P	1	1	
13-1	DB72-60034B	INSUL PARTITION	Foam Pe + Foam Pu	1	1	
14	DB90-10613A	ASS'Y-CABI UPPER	ASS'Y	1	1	
15	DB95-10065M	ASS'Y-COMP	44H092JW1E4	2	2	⚠
		ASS'Y-COMP	44H070JW1E2	-	1	
	DB95-10062X	ASS'Y-COMP	48H124JV1E4	-	1	
15-1	DB73-10004A	GROMMET-ISOLATOR	EPDM	6	6	
15-2	DB60-30028A	NUT-WASHER	M8	6	6	
15-3	DB60-30018A	NUT-FLANGE	P10.8	2	2	
15-4	DB63-10165B	COVER-TERMINAL	NORYL	2	2	
15-5	DB47-20002B	OLP	MRA12037-12007	2	-	
		OLP	MST24AMN-12008	-	1	
	DB47-20001Z	OLP	MRA12030-12008	-	1	
16	DB99-10150A	ASS'Y 4-WAY V/V, A	AD18A1E2	1	-	
	DB99-00003A	ASS'Y 4-WAY V/V, A	AD19A1E2	-	1	
16-1	DB62-40035A	4-WAY VALVE	SAGINOMIYA	1	1	
16-2	DB27-10003D	SOLENOID-COIL	SAGINOMIYA	1	1	
17	DB99-10151A	ASS'Y 4-WAY V/V, B	AD18A1E2	1	-	
	DB99-00004A	ASS'Y 4-WAY V/V, B	AD19A1E2	-	1	
17-1	DB27-10004E	SOLENOID-V/V	SAGINOMIYA	1	1	
17-2	DB62-40035A	4-WAY VALVE	SAGINOMIYA	1	1	
18	DB75-30110A	CONDENSER	AD18A1E2	1	-	
		CONDENSER	AD19A1E2	-	1	
19	DB63-30130B	SCREEN-GUARD	P.E.H 100%	1	1	

6-3 Remote Control & PCB Box

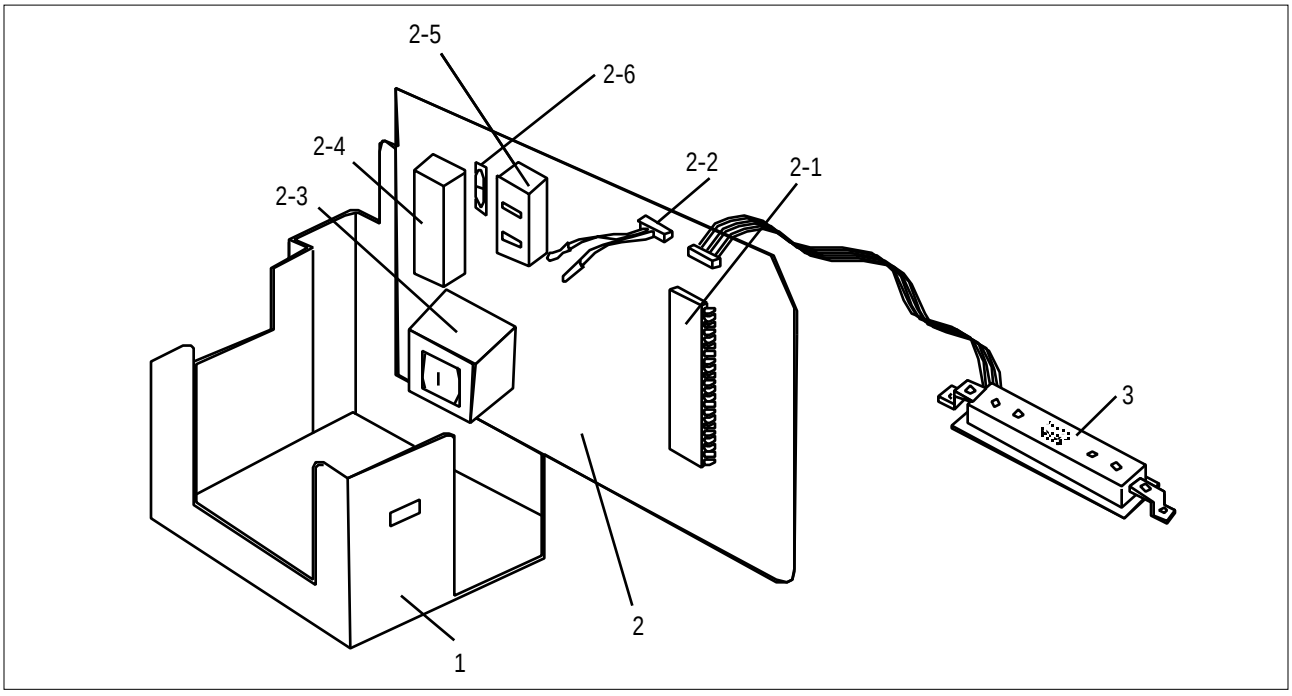
6-3-1 Remote Control



■ Parts List

No	CODE NO	Description	Specification	Q'TY	Remark
	DB93-30071H	ASS'Y CODE			
1	DB61-10144A	CASE UP	ABS	1	
2	DB61-10145A	CASE LOW	ABS	1	
3	DB64-20054A	DOOR REMOCON	ABS	1	
4	DB63-10477A	COVER BATTERY	ABS	1	
5	DB74-10084A	FILTER REMOCON	PC	1	
6	DB73-20110B	RUBBER REMOCON	SILICON	1	
7	DB64-40167A	INLAY LCD	PC	1	
8	DB64-40166B	INLAY REMOCON	PC	1	
9	DB68-10775A	LABEL REMOCON	ART 90	1	
10	DB68-10777A	LABEL DOOR	ART 90	1	
11	PH-M2	SCREW TAP	PH-M2	6	
12	DB67-60061A	SPRING BATTERY	SUS 304	1	
13	DB67-60062A	SPRING BATTERY	SUS 304	1	
14	DB67-60063A	SPRING BATTERY	SUS 304	1	
15	90 X 250	PE BAG	90 X 250	1	
16	DB93-40179B	ASS'Y PCB REMOCON		1	
17	DB61-40243A	HOLDER REMOCON	ABS	1	

6-3-2 PCB Box

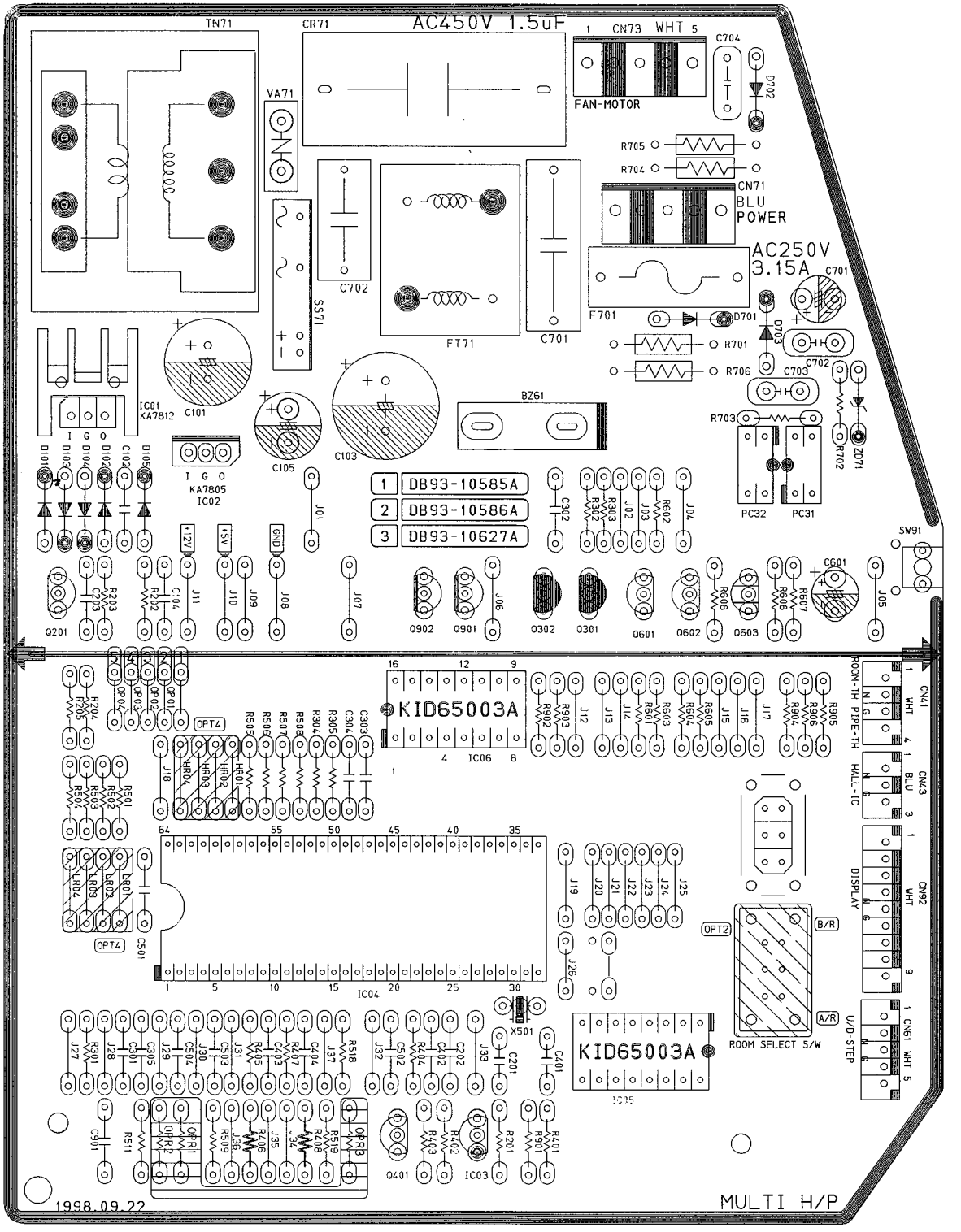


■ Parts List

No	CODE NO	Description	Specification	Q'TY				Remark
				AD24A1(B1)E12	AD18A1(B1)E09	AD19A1(B1)E07	AD19A1(B1)E12	
1	DB61-10151A	CASE-CONTROL	ABS(94-5V)	1	1	1	1	
2	DB93-10585A	ASS'Y MAIN PCB	ASS'Y	-	1	-	-	
	DB93-10630A	"	"	-	-	1	-	
	DB93-10586A	"	"	1	-	-	-	
	DB93-10630B	"	"	-	-	-	1	
2-1	DB09-10149A	IC - MCU	MB89635R-466	1	1	1	1	
2-2	DB32-10008D	THERMISTOR ASS'Y	103AT	1	1	1	1	
2-3	DE26-20154A	TRANS-POWER	AC230V DC17V 300mA	1	1	1	1	
2-4	2306-000294	C-FILM	CFS 99N 450VAC 155K	1	1	1	1	
2-5	3501-001058	POWER-RELAY	DI1U DC12V	1	1	1	1	
2-6	DE32-10037A	FUSE	250V 3.15A	1	1	1	1	
3	DB93-10560B	ASS'Y PCB DISPLAY	A1-GRILLE	1	1	1	1	
	DB93-10561B	ASS'Y PCB DISPLAY	B1-GRILLE	1	1	1	1	

7. PCB Diagrams

7-1 Main PCB

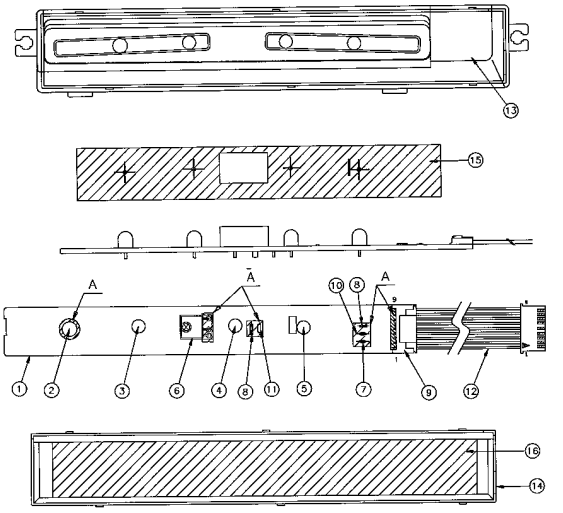


■ PART LIST

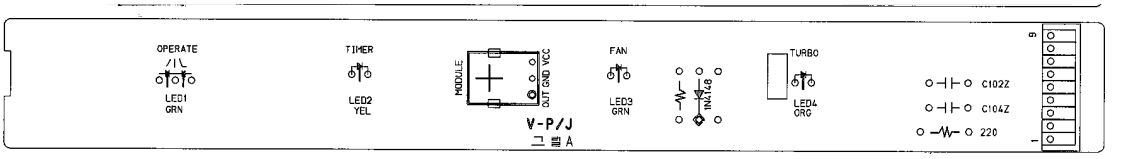
No	DESIGN LOCATION	CODE NO	Description	Specification	Q'TY
1	F701	DE32-10037A	FUSE	FST 250V 3.15A	1
2	F701	DE47-40024A	HOLDER-FUSE	FH-51H 7.5A	1
3	IC01	DE13-20008A	IC-VOLT REGU	KA7812A	1
4	IC01	DE62-30032A	HEAT-SINK	AL H25	1
5	IC01	DE60-10100A	SCREW-PH	M3*6 FeFzY	1
6	IC02	DE13-10016A	IC-VOLT REGU	KA7805A	1
7	CR71	2306-000294	C-FILM	CQS 450V 1.5	1
8	FT71		FILTER NOISE	LSA05230P	1
9	R903	2001-000776	R-CARBON	RD 1/2 T(S) 471-J	1
10	R203	2001-000588	R-CARBON	RD 1/4 TP 332-J	1
11	R202,301,409,501~509,513,601,604,606,901	2001-000065	R-CARBON	RD 1/4 TP 103-J	17
12	R405,407	2001-000036	R-CARBON	RD 1/4 TP 331-J	2
13	R201,204,401,402,404,603,605	2001-000042	R-CARBON	RD 1/4 TP 102-J	7
14	R607	2001-000855	R-CARBON	RD 1/4 TP 560-J	1
15	R602	2001-001088	R-CARBON	RD 1/2 T(S) 102-J	1
16	R403	2001-000890	R-CARBON	RD 1/4 TP 682-J	1
17	R910,912	A1000-0244	R-CARBON	RD 1/8 TP 332-J	2
18	R406,408	2004-001137	R-METAL FILM	RD 1/4 TP 682-F	2
19	D101~105	0402-000137	DIODE-RECT	1N4007	5
20	SS71	B4190-0016	THYRISTOR	G3MB-202PL	1
21	BZ61	DE30-20016A	BUZZER	CBE 2220BA STICK	1
22	TN71	DE26-20154A	TRANS L.V	230V DC17V 300mA	1
23	TN71	DE60-60012A	PIN EYELET	OD2.5 L3.0	5
24	C202,402	2202-000783	C-CERAMIC	CA OA 50V 103Z	2
25	C301,401	2202-000796	C-CERAMIC	CA OA 50V 102Z	2
26	C102,104,201,203,403,404,501,502,901	2202-000780	C-CERAMIC	CA OA 50V 104Z	9
27	C103	2401-000710	C-ELEC	CE04 25V 222-M	1
28	C105	2401-001397	C-ELEC	CE 04 25V 471-M	1
29	C101	2401-000180	C-ELEC	CE 04 35V 102-M	1
30	C601	2401-001573	C-ELEC	47UF/50V	1
31	IC04	DE09-10149A	IC-MCU	MB89635R-466	1
32	IC03	DE13-20009A	IC	KA7533Z	1
33	X501	2802-000103	RSONATOR-CERAMIC	10MHz	1
34	IC05,IC06,IC07	DE13-20024A	IC-DRIVE	KID65003AP(KA2657)	3
35	Q201,401,601,602	A4050-0168	TR-GENERAL	KSC945Y	4
36	Q603	0501-000292	TRANSISTOR	A708Y	1
37	Q902, Q901	0504-000144	TRANSISTOR	R2002	2
38	SW91	3404-001013	SWITCH-TACT	KPT-1115V	1
39	CN73	3711-000262	CONNECTOR WAFER	YW396-05AV WHT	1
40	CN43	3711-000879	CONNECTOR WAFER	SMW250-03 BLU	1
41	CN41	3711-000940	CONNECTOR WAFER	SMW250-04(WHT)	1
42	CN61	3711-000999	CONNECTOR WAFER	SMW250-05 WHT	1
43	CN92	3711-001154	CONNECTOR WAFER	SMW250-09 WHT	1
44	TB71	DE59-30001A	CONNECTOR-TERMINAL	250TAP,1PIN	1
45	RY71	3501-001058	RELAY	DI1U DC12V	1
46	J1~J29,HR01,03,LR01	DE39-60001A	WIRE SO COPER	PI0.6 SN T 52MM	32
47	C701		C-MYLAR	224K	1
48	C702		C-MYLAR	104K	1
49	R904~906		R-CARBON	RD 1/2T(S) 621-J	3
50	CM71		CONNECTOR WAFER	YW396-03AV(BLK)	1
51	RY72	3501-000399	RELAY	JQ1a-12V	1

7-2 ASS'Y DISPLAY & Module

• DB93-10560B / DB93-10561B



• PCB-DISPLAY : DB41-10204A



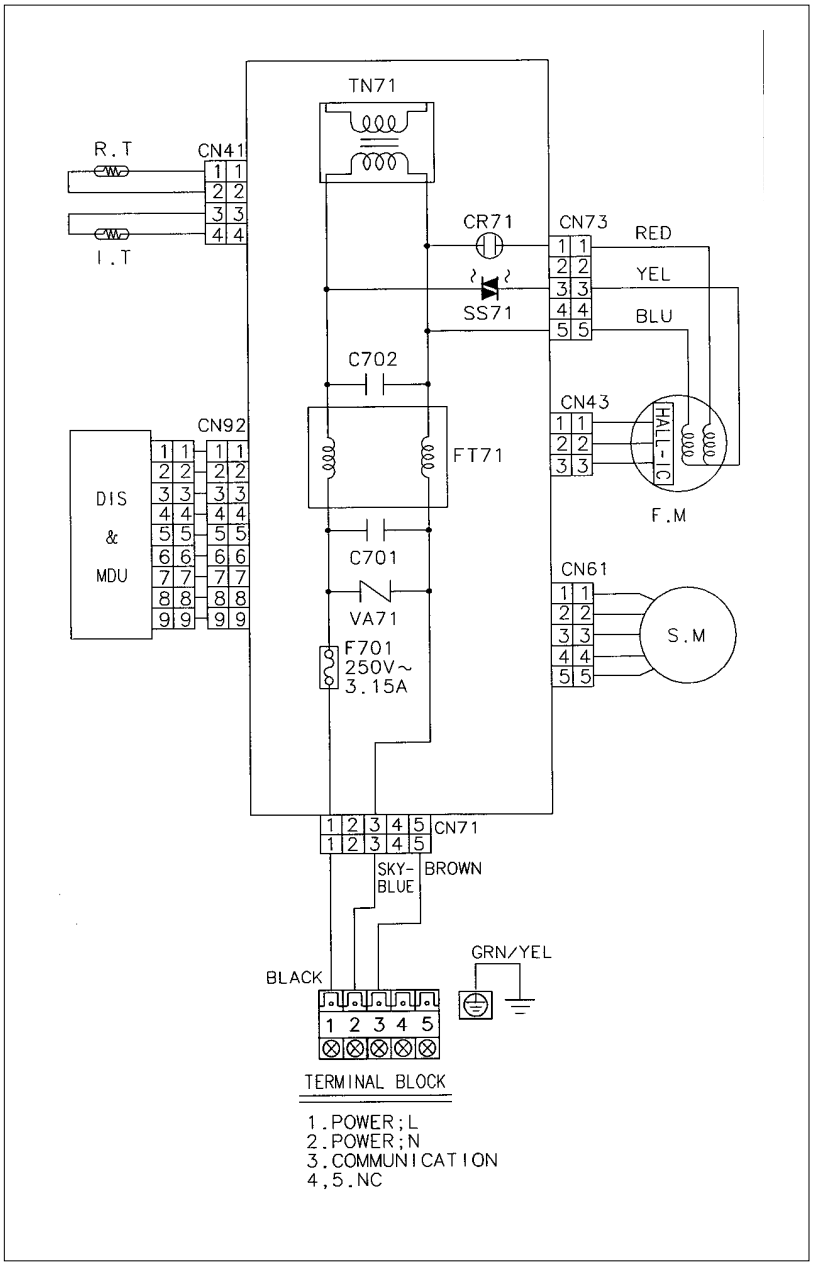
■ PART LIST

No	Description	CODE-NO	Specification	Q'TY
1	PCB-DISPLAY	DB41-10204B	FR-1 T1.6 W20 L170	1
2	LED-LAMP	0601-001333	LTL-30EHJ(ORG/GRN)	1
3	LED-LAMP	0601-001059	SY5511(YEL)	1
4	LED-LAMP	0601-001060	SM5511(GRN)	1
5	LED-LAMP	0601-001196	SO5511(ORG)	1
6	MODULE REMOCON	DB32-50027A	PNA4612MøøMD	1
7	C-CERAMIC	2202-000780	CA OA 50V 104Z	1
8	R-CARBON	2001-000515	RD 1/8TP 221-J	2
9	CONNECTOR WAFER		YWLA200-09P	1
10	C-CERAMIC	2201-000283	CA OA 50V 102Z	1
11	DIODE SWITCHING	0401-000005	1N4148	1
12	C/W DIS & MODULE	DB39-20346A	UL1007 AWG#26/9	1
13	CASE-CENTER PCB UP	DB61-10191A	PC,BLUE	1
14	CASE-CENTER PCB LOW	DB63-10494A	ABS,BLK	1
15	SEAL DISPLAY UPP	DB72-10233A	FOAM-PE,BLK	1
16	SEAL CASE DISPLAY	DB72-10220F	30 FOAM-PE	1

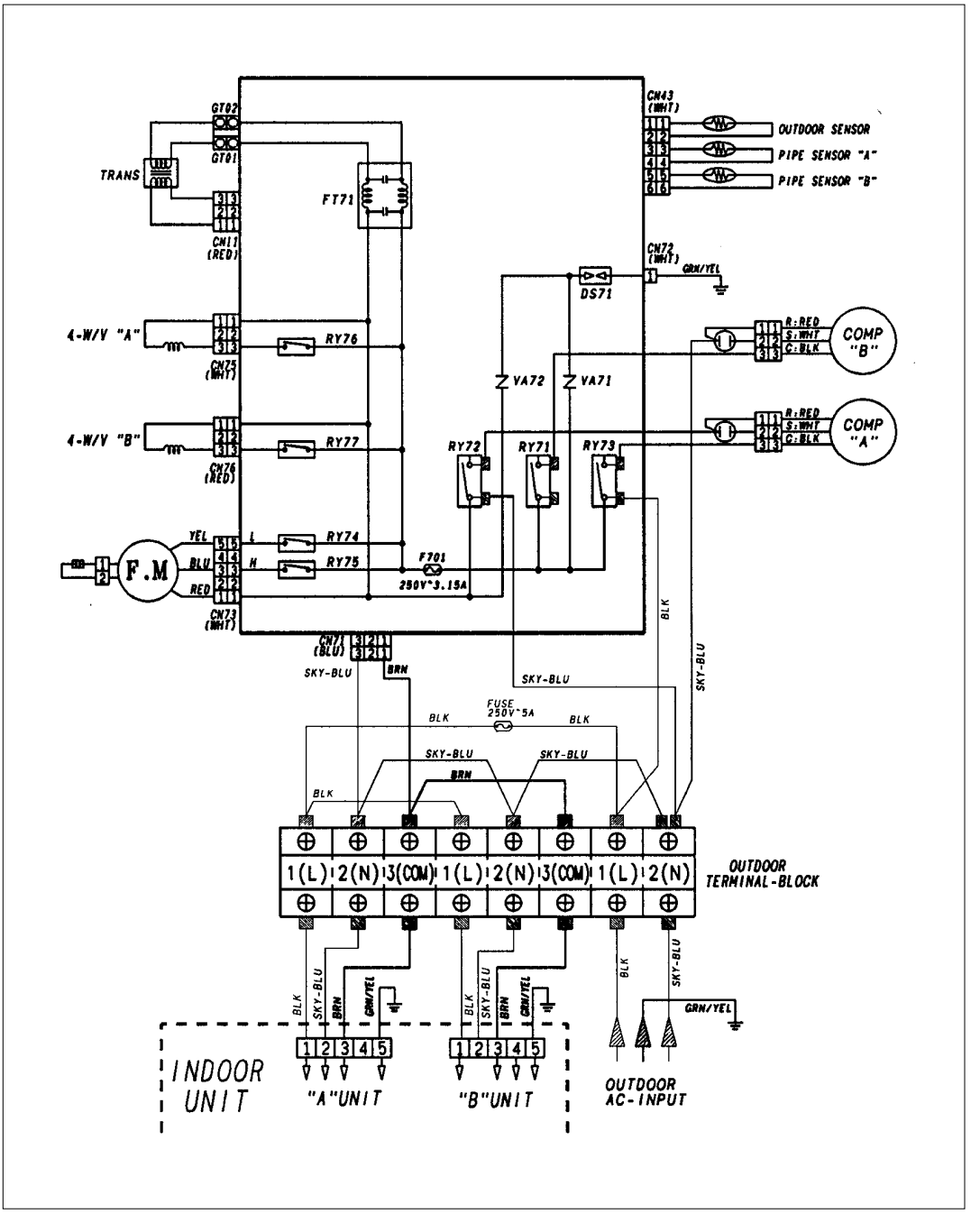
8. Wiring Diagrams

8-1 Indoor Unit

• AD24A1(B1)E12/AD18A1(B1)E09/AD19A1(B1)E07/AD19A1(B1)E12



8-2 Outdoor Unit [UD24A1(B1)E2/UD18A1(B1)E2/UD19A1(B1)E2]



UPDA TE LOG SHEET

Application date	Page	Part#	Note(Cause & Solution)	S/Bulletin#

Use this page to keep any special servicing information. (Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service bulletin

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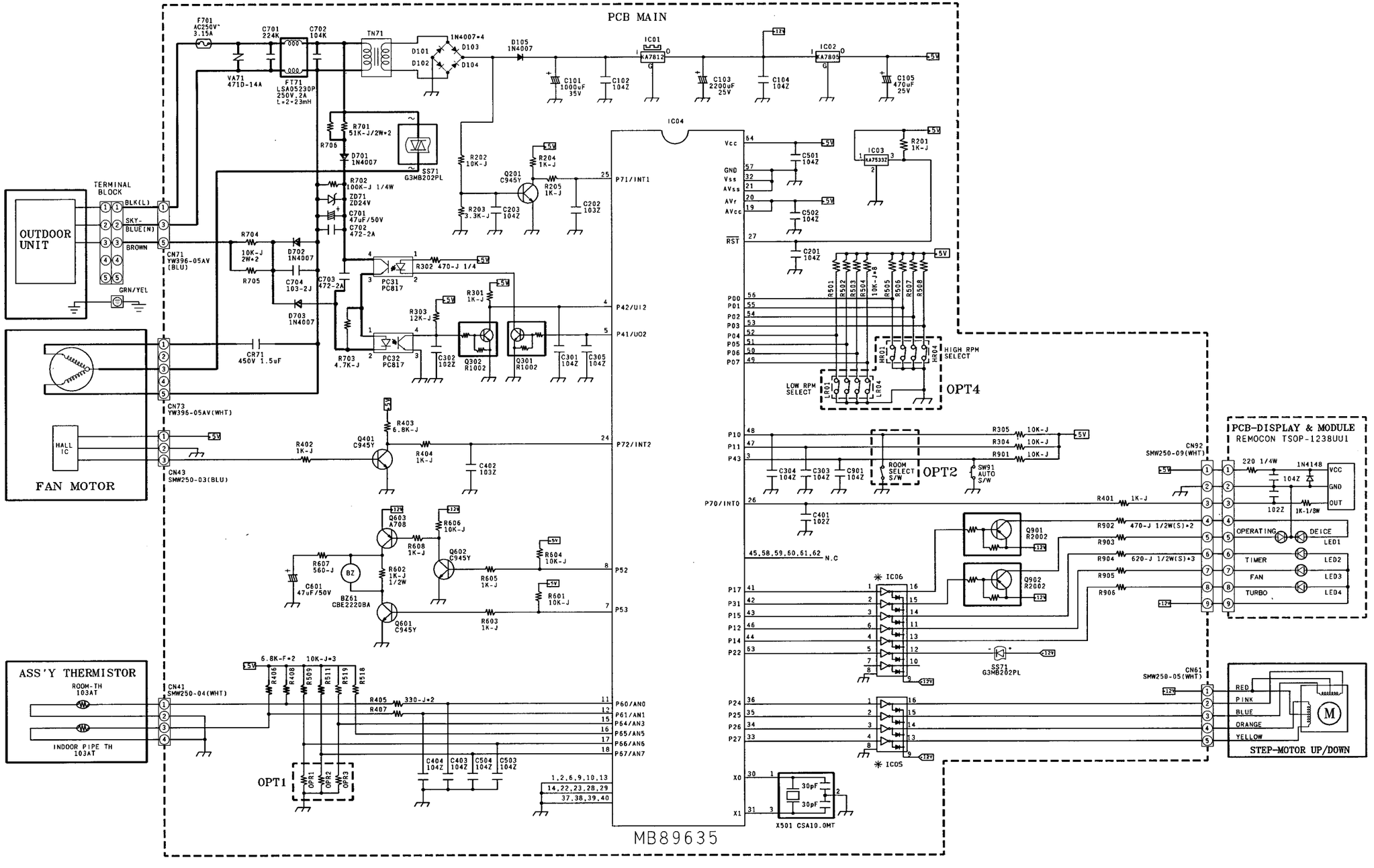
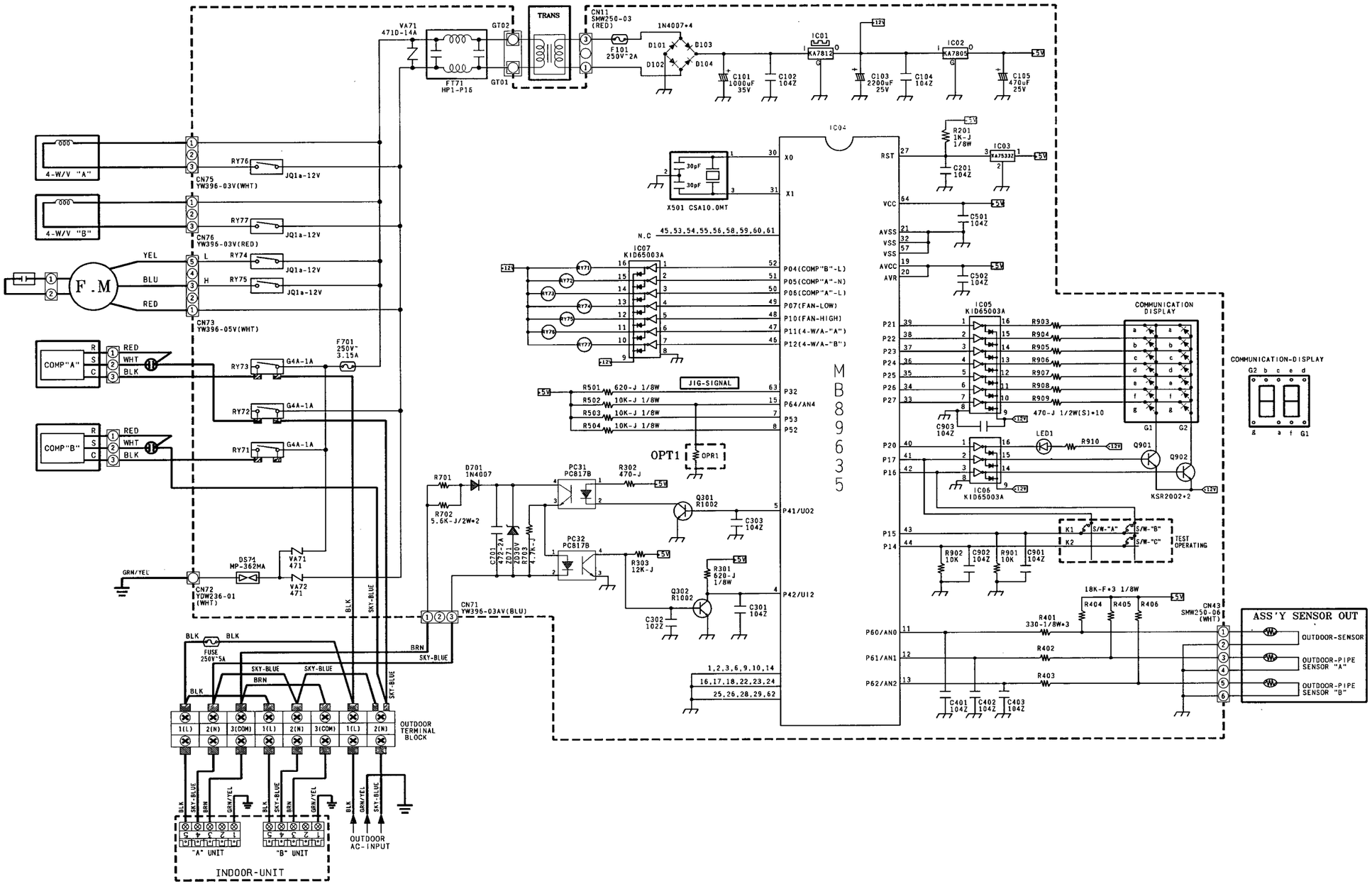
9. Schematic Diagrams

9-1 Indoor Unit




TRANS
VA71 471D-14A
FT71 HP1-P15
GT02
GT01
CN11 SMW250-03 (RED)
F101 250V-2A
1N4007*4
D101
D102
D103
D104
IC01 KA7812
IC02 KA7805
C101 1000uF 35V
C102 104Z
C103 2200uF 25V
C104 104Z
C105 470uF 25V
4-W/V "A"
4-W/V "B"
F.M
YEL
BLU
RED
CN75 YW396-03V(WHT)
CN76 YW396-03V(RED)
CN73 YW396-05V(WHT)
RY76
RY77
RY74
RY75
JQ1a-12V
COMP"A"
COMP"B"
RED
WHT
BLK
RY73
RY72
RY71
G4A-1A
F701 250V~ 3.15A
GRN/YEL
DS71 MP-362MA
VA71 471
VA72 471
CN72 YOW236-01 (WHT)
BLK
SKY-BLUE
BRN
FUSE 250V~5A
OUTDOOR TERMINAL BLOCK
1(L)
2(N)
3(COM)
"A" UNIT
"B" UNIT
INDOOR-UNIT
OUTDOOR AC-INPUT
CN71 YW396-03AV(BLU)
IC04
X501 CSA10.0MT
30pF
X0
X1
N.C
45,53,54,55,56,58,59,60,61
IC07 KID65003A
P04(COMP"B"-L)
P05(COMP"A"-N)
P06(COMP"A"-L)
P07(FAN-LOW)
P10(FAN-HIGH)
P11(4-W/A-"A")
P12(4-W/A-"B")
JIG-SIGNAL
R501 620-J 1/8W
R502 10K-J 1/8W
R503 10K-J 1/8W
R504 10K-J 1/8W
P32
P64/AN4
P53
P52
OPT1
OPR1
R701
D701 1N4007
R702 5.6K-J/2W*2
PC31 PC817B
PC32 PC817B
R302 470-J
R303 12K-J
Q301 R1002
Q302 R1002
C303 104Z
C301 104Z
C302 102Z
C701 472-ZA1 2000V
R703 4.7K-J
P41/U02
P42/U12
1,2,3,6,9,10,14
16,17,18,22,23,24
25,26,28,29,62
R201 1K-J 1/8W
IC03 KA7533Z
C201 104Z
RST
VCC
AVSS
VSS
AVCC
AVR
C501 104Z
C502 104Z
IC05 KID65003A
P21
P22
P23
P24
P25
P26
P27
P20
P17
P16
R903
R904
R905
R906
R907
R908
R909
470-J 1/2W(S)*10
C903 104Z
LED1
R910
Q901
Q902
KSR2002*2
IC06 KID65003A
COMMUNICATION DISPLAY
COMMUNICATION-DISPLAY
G2 b c e d
g a f G1
P15
P14
K1
K2
S/W-"A"
S/W-"B"
S/W-"C"
TEST OPERATING
R902 10K
C902 104Z
R901 10K
C901 104Z
18K-F*3 1/8W
R404
R405
R406
R401 330-1/8W*3
R402
R403
P60/AN0
P61/AN1
P62/AN2
C401 104Z
C402 104Z
C403 104Z
CN43 SMW250-06 (WHT)
ASS'Y SENSOR OUT
OUTDOOR-SENSOR
OUTDOOR-PIPE SENSOR "A"
OUTDOOR-PIPE SENSOR "B"
MB89635